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ABSTRACT

This paper outlines the theoretical foundations of a strategy-based approach to second language reading abilities and demonstrates how the strategies described can be related to content area texts, thereby "authenticating" the learner's knowledge. There are three major sections--approach, method, and techniques. The "approach" section is divided into six chapters: (1) Learner Needs and Learning Needs: An Approach; (2) Building the Framework: Interactivity, Genre and Dominance v. Dependence; (3) Reading and the Communicative Resources of English: Being Clear, Expressive, Quick and Processible; (4) Language Function-Language Use; (5) Motivation and Coding; and (6) The Reflex of Function in Language. The sixth chapter includes subsections on understanding, following, identifying, and finding. The "methods" section is titled "How To Be a Dominant Reader: Methods," and includes sections on context strategies, text strategies, interaction strategies, and becoming a writer. The "techniques" section provides sample texts from various technical areas of study and further treatment of the concepts "finding" and "following." (Numerous diagrams are used throughout. Forty references and two appendixes--a taxonomy of reading strategies and a reprint of a journal article stressing points made in the main text--are attached.) (MHC)

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Reading And Coping : Code, Communication And The Development Of Second Language Reading Abilities Using Content Area Texts.

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October 1987

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Reading And Coping

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Preface: Reader strategies

1 Context strategies

To be a dominant reader the reader must identify texts on a topic, he is interested in, to an audience at his level, and co-mensurate with his purpose.

2 Text strategies

Once the reader has identified the text he needs to 'find' the information in the text, or section of the text he is interested in (he needs to process the whole text), he needs to 'follow' a particular tppic through the text (he needs to be aware of cohesion and linkage), he needs to 'understand' the propositional relations, and to 'identify' the writers attitude or personal and functional tenor.

3 Interaction strategies

The process of writing involves a covert interaction with an imaginary reader, with whom a dialogue is conducted. Sometimes the writer says too much in support of a point, and over-textualises, while at other times he fails to give enough support to the reader and undertextualises. The skilled, and dominant reader attempts to reconstruct the writer's imaginary dialogue so as to be aware of its assumptions about him as a reader. The reader, then, must *interact* with the writer and *negotiate* the message in the text.

4 The Doppelganger Effect

By interacting in this way, and identifying the choices the writer faces in constructing a text, the reader, in effect, becomes the writer. He sees Himself *reflected* as the writer *imagined* him. Becoming a reader involves, therefore, becoming a writer too, and this is one of the most important lessons we can learn from reading - how to write considerately.

5 Coping With Text

Most readers have a purpose. There are things they want to *do* , and reading can help them. In certain jobs, and on certain University courses the texts they need to use are easy to identify. The reader doesn't need *context* strategies so much as *text* strategies applied to the 'authentic contexts' he knows will help acheive his reading purpose.

This paper is an attempt to outline the theoretical foundations of a strategy based approach to developing second language reading abilities, and to demonstrate how the strategies described can be related to content area texts, so 'authenticating' the learner's knowledge , and practice, of the general strategies.

The approach described and exemplified here is largely the result of my experiences in developing reading materials for University students in Bahrain, who needed to learn English as a means of access to literature in their fields of specialisation at the University of Bahrain. I adopted the approach of using content area texts as 'motivating contexts' for the development of generalisable reading strategies.(see section 1).

The problem remained though of how to characterize the strategies which I assumed to be generalisable. This is the focus of much of the argumentation in the first half of this paper (sections 2,3,4 5 and 6). Here again the context in which I was working was formative of my approach. Firstly, the characterization had to be sufficiently simple so as to allow it to be the basis of materials development. Many discussions of reading strategies tend to result in rather lengthy and complex taxonomies which are less capable of application to materials development than one would like. (see appendix 1). As a result I have suggested a 'quartet' of 'text' strategies, and a preferred sequence of application (see the preface which follows and sections 7, 8 and 9).

Secondly, my students were second language learners, who were imperfect in their knowledge of the 'code' of English. How could I facilitate acquisition of a knowledge of the resources of the code while at the same time enabling them to read difficult content area texts? My solution, explained in the first half of this paper, has been to

develop a comparative framework whereby the communicative resources of English can be compared with those of any language. By this I mean that every language encodes within it the resources necessary to enable the language user (and so the writer) to be clear, quick, expressive and processible. These resources are 'encoded' within particular languages, but the communicative 'motivations' are, I assume, universal and familiar therefore to second language learners, such as mine in Bahrain. An awareness of these motives provides a bridge between the code of the L1, the first language, and that of the L2 or second language. This functional view of language, and the distinctions made above drawn from Slobin (1979), lies at the heart of the theory in the early sections. The framework is then applied in a , hopefully, useful way to developing reading exercises in the later sections of the paper.

Another way of summarising the development of this paper is to see the first part - in which I discuss the principles of reading as interactive, and the relation of such principles to the functional resources of the language code - as formative of what Anthony(1963) calls an 'approach' to developing reading ability.'An approach is a set of correlative assumptions dealing with the nature of language teaching and learning. An approach is axiomatic. It describes the nature of the subject matter to be taught'. My approach, then is interactive-functional, and in section 6. I attempt to describe the resources the writer has at his or her disposal, and on which the reader must base interpretation of writer intent.

An approach is different from a 'method'(Anthony 1963) which is an 'overall plan for the orderly presentation of language material', and the method I focus on in section 7. is the utilisation of context and text strategies in relation to authentic 'contexts' for reading skills development. Finally the reading exercises make use of a number of 'techniques' which I relate to my 'overall' framework or 'approach'(see sections 8 and 9.)

Approach

Reading And Coping

1. Learner Needs And Learning Needs

In a previous paper (1987c) I have argued that we need to provide students with a way of renewing connection between the generalised reading strategies on a 'core' reading course, and the 'authentic' texts and tasks which they have to be able to deal or cope with using the strategies we teach them. The proposal I make there is that we develop core strategies using non-subject specific, manufactured texts. Linked to the core reading strategies book are satellite books of subject-specific authentic texts and tasks which require the application of the previously developed strategies, thereby 'authenticating' the teaching of reading for the learner. But why should we do this? Isn't all text 'authentic'? Yes.

I, myself,do not think that 'authenticity' is inherent in text, but is rather a feature of the learner's response to text. However, from the perspective of learner-motivation I have found that unless some demonstration of the generalised reading strategies takes place in direct relation to texts 'of the kind' learners 'expect' to have to cope with then there can be a loss of confidence in the relevance of the 'contrivances' the teacher introduces in teaching reading.

There is also the question of the larger learning context. In English medium tertiary level institutions abroad English itself is rarely the exclusive focus, in and of itself, of learner attention. Rather it provides access to lectures conducted in, and textbooks written in English on a number of different technical and scientific subjects. The English Language Unit in these institutions, like my own in Bahrain and Libya, is essentially a service unit which provides access to the content of other subject areas. Much animosity, in fact, or at least criticism, can result when such Language Units adopt a policy of teaching only 'general' courses. This is because staff in other subjects lack confidence in course materials for teaching English that do not have 'face validity', in the sense of being

"

'relevant' to perceived nedds - most often identified as a need to acquire familiarity with technical vocabulary, through texts on 'valid' topics: but such perceptions do seem focussed on the 'product' to be read rather than the generaliseable 'process' of reading. The former what they 'want', to use the old distinction, while the latter is what they 'need'. But this is not so clear to me. To work well at anything you have to be convinced that what you are doing is going to be wotthwhile, and providing for 'wants' is necessary ('needed' therefore) if we are to create the conditions for learning,i.e. confidence in the teaching process. Let us distinguish then between 'learner' needs-(to do with the purposes for which the learner will use the language after the course is over , an ability to handle the 'process' of reading)- and 'learning' needs -(those aspects of pedagogy which create the best conditions for learning by ensuring motivation). The former are catered for by generalisable reading strategies, the latter by the provision of authentic texts or 'authenticating contexts' as I have called them.

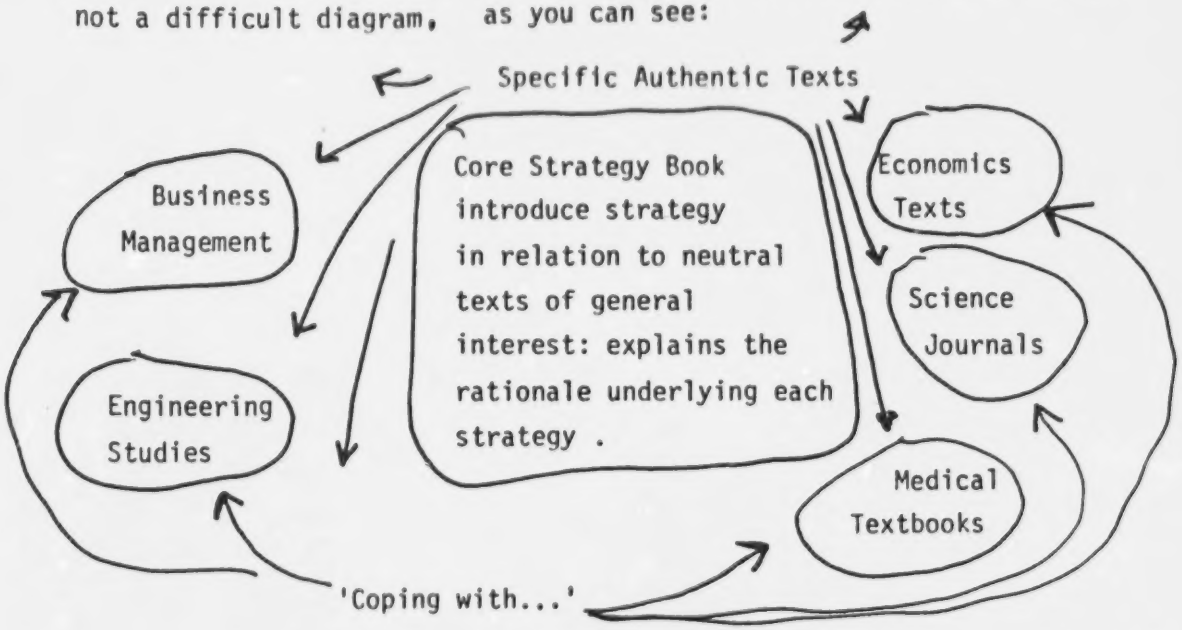
'learner' needs	'learning' needs
strategies for handling the reading process which can be generalised to multiple instances of reading texts.	texts which appear relevant and create confidence in the validity of the learning environment, so ensuring motivation
(Reading) ⟶ Needs	Wants ⟵ (Coping)

The learner-learning needs distinction, like many others I make, is Widdowson's. But here is one of my own, and it relates back to my title, as well as this distinction; the learner <u>needs</u> to be able to 'read', but she <u>wants</u> to be able to 'cope'. (See diagram above).

There is a third reason for using 'authenticating contexts'

which I touched on in my other paper, and which I will not go into detail over here. It concerns the matter, (and this is still subject to confirmation from directed research) of whether writers from different subject areas, say 'Physics', actually have different ways of 'textualising' the reader, and so making differential demands on the reader's ability to cope with texts in specific subject areas. In other words, do different subjects make different demands on the extent to which learners draw on the strategies they have for processing text, or, perhaps, make excessive demands on students ability to use particular strategies? To rephrase this difficult point again, given that we have identified strategy X, will writers in subject A draw on it more than writers in subject B? If so then there is obviously a case for 'authenticating' the general strategies for reading text by presenting them in the special combinations that specific subject texts seem to draw on. But this is speculative,(though work is being done in this area on 'genre' analysis), and it also begs the important question of , 'what strategies are we talking about'?

Before I discuss this I want to give a diagram showing the possible relationship of core to specific strategy books, not a difficult diagram, as you can see:


Specific Authentic Texts
Core Strategy Book introduce strategy in relation to neutral texts of general interest: explains the rationale underlying each strategy .
Business Management
Engineering Studies
Economics Texts
Science Journals
Medical Textbooks
'Coping with...'

We could provide for the core and specific books to be used either consecutively, or in tandem with each other. My examples are from subjects studied in Bahrain; but whatever subjects we chose, the principle

would be the same. Of authenticating the strategies taught in the core book via texts with 'face validity' and tasks which are commensurate with learning purposes. This latter point is important, and though I will not dwell on it too much the provision of a set of 'purposeful' reading tasks in each subject specific book is also an aim. This validates the act of reading as communication for the learner: learners will not be 'authentically' engaged in reading as an activity unless they know, and consent to the credibility of, the purpose for which they are reading. But now I have gone so far in a vacuum. I wish to outline below a broad theory of reading as a communicative, interactive process, drawing on the work of others, and on the basis of this to design a framework for describing the various strategies which can be a focus for pedagogy.

2. Building The Framework: Interactivity , Genre And Dominance v. Dependence

Reading, I take it, is a communicative activity: it is a second order reconstitution of the first order paradigm of face to face conversation. There are important differences, but I will not dwell on them. The statement I have just made implies that the reading process is essentially 'dialogic' and involves the reader in a covert projection of the author with whom a reconstituted dialogue progresses, as it were, in silence, following the Gricean maxims of assuming relevance etc. which are subsumed under the co-operative principle. For example;

Wr: Reading,I take it, is a communicative activity

R: What do you mean 'communicative activity'? Can you be more precise?

Wr: It is a second order reconstitution of the first order paradigm of face to face conversation.

R: You mean reading and conversation are the same?

Wr: There are important differences, but I will not dwell on them.

To which the reader , it would seem, can only reply 'Hmmmm'. Or, 'I'm interested in the differences, where can I find out about them'? And this choice of reader reaction constitutes the essebtial difference between speaking-listening and reading-writing. The former is here-and-now interaction, with the consequence that each participant has right of access to shaping the way the interaction will proceed; the latter is dislocated, as it were, and the reader's reaction is only modelled prospectively, leaving no room for deviation from the writer's plan of how the dialogue will proceed.

To be successful at meeting the reader's needs, then, the writer must plan carefully by anticipating the type of support information the reader will require. The balance she must strike is between over-textualising a message, by providing too much support information, and under-textualising by failing to provide enough and being unclear. To strike the balance the writer imagines a certain type of reader and encodes their reactions and responses within the text. The choice of imaginary interlocutor, or ideal reader, is made with reference to certain conventions governing the interaction; that the reader is interested in a certain topic, of a certain level of proficiency, and familair with the genre etc. In other words the writer assumes the reader to be familiar with the conventions governing the text as a speech event.i.e. that it has a certain addresser, addressee relationship, that it is on a certain topic , that it is encoded via the medium of written print, and has a particular generic form.

The question of 'genre' is important here because it carries with it the implication that groups of texts are organised in systematically different ways , and that these are identifiable by the reader. So there are 'genres' like a Physics laboratory report, a medical journal article, a legal treatise, each with their own differential 'text-structure', or 'textual family resemblance'. Swales defines 'genre' as , ' a more or less standardized communicative event with a goal or set of goals mutually understood by the participants in that event and occurring within a functional rather than a social or personal setting. Well established genres are reports of laboratory experiments, scientific papers, testimonials and job references, sermons, cross examinations, medical case reports and so on'.(1985: 212). He makes the point that there is a potentially confusing proliferation of terms referring to ' genre': ' genre itself from literary criticism, speech-event from linguistics, activity-type from anthropology, topic-type from reading research, communicative event from ethnomethodology and text-type fromdiscpurse analysis'.(1985:212).

The prospect that the identification of text types or genres holds out seems to me to be valuable pedagogically. This is because it provides us with a way of sensitizing the reader to the differing schemas or textual plans that writers in different areas assume as the basis for prospectively modelling the reader in the way referred to above. They are what Vin Dijk calls 'macro-structures'(1978) or what Schank, Abelson call 'scripts' (1977). They can be used, when identified, as the basis of 'pedagogically employable generalizations that will capture useful relationship between form and function'(Swales 1985:213). There is a long tradition of such analyses in ESP, and a growing interests in the structure of text-type in relation to what is called 'content area' teaching in the U.S.

I have many references, both to analytic procedures, [1] and work in progress or work already done which I will not overload you with here. In terms of my 'reading', 'coping' distinction, reading consists of a generalizable ability applied to a broad range of differing text-types, but 'coping' carries with it the extra ability to handle the particular textual patterns of specific genres. Given that a medical journal article is individualized and marked as regards its textual structure it might seem 'difficult' to read to the reader more familiar with less specialized forms of text. Shifting from reading to coping involves a shift from the generalized text to more marked generic patterns. The questions to be answered are; to what extent do the areas I have identified (engineering texts, legal texts, medical articles etc) have associated with them specific textual structures, and to what extent do they draw on a differential weighting of the generalizable reading strategies we might hope to describe? For example, I think Physics manuals and perhaps Medical journals would draw heavily on the ability to link diagrammatic information to text, as a supplement to the paraphrases given there, but this would be much less likely to be a feature of legal texts. Legal texts, on the other hand, might well require more ability in identifying and distinguishing main and embedded subordinate clauses.

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1. I have grouped follow up readings under relevant headings in the bibliography. For this subject see 'genre and text-structure'.

I have claimed that writing and reading is interactive, but that the schematic structure, or 'genre' within which the interaction takes place may be subject specific. It is also possible for a reader to mis-read by being unco-operative and so subvert the communicative assumption of the writer. The latitude that the reader has for interpreting, or mis-reading the plans laid for him by the writer is not necessarily though a bad thing. The distinction I wish to make here is between two kinds of reader, and two degreees of complicity with the plan a writer projects. The distinction is between 'dominant' readers and 'dependent' readers.

Dominant readers are 'assertive' and 'quarrel', as it were, with the text. Their typical response is - 'I understand what you mean and I don't agree with it'. In extreme cases this dominance can take the form of - ' I don't want to understand what you mean, but you have information I need and I want to find it quickly'. (see Alderson and Urquhart's response to Widdowson's article 1984: 228-229). This activity is called 'scanning'.

Dependence, on the other hand, involves the reader in submitting to the author- ' I don't understand but I'm trying very hard to by reading everything closely'. It seems clear that if readers are to 'cope' with heavy reading assignments they need to develop 'dominant' reading habits. We need to show them ways around 'reading everything' so as to make reading tasks more manageable. In fact, the very act of bringing a particular 'task' or 'purpose' to the text means that the reader has to dominate it in order to extract the necessary information from it. It may be that the task requires the extraction of information in a manner forseen by the writer, in which case the task will be relatively easy to complete, but occassionally texts are useful in ways a writer could not have anticipated, and the needed information is consequently harder to extract. Task type is, then, an important consideration.

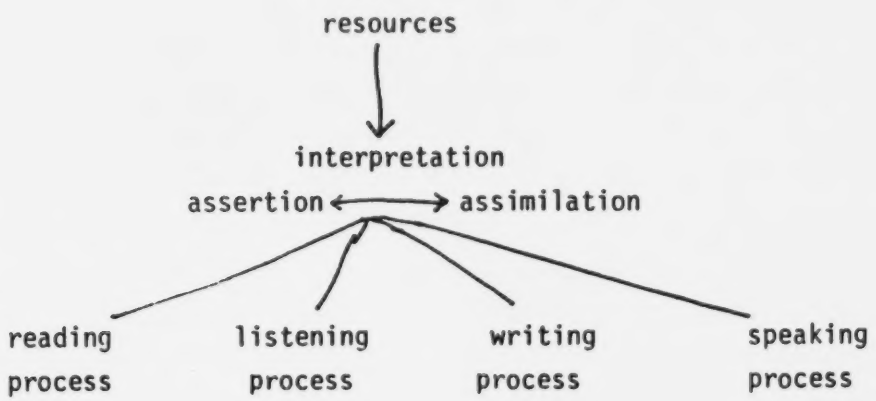
Another way of making the point above is to say that we want readers to be more <u>assertive</u> than <u>assimilative</u> on occassions -to take the initiative from the writer rather than being led submissively through the text attempting to assimilate everything there. Who, after all, does this entirely? Our efforts as readers are always located somewhere on the <u>c</u>line from assertion to assimilation, and never at the extremes.

3. Reading And The Communicative Resources Of Language: Being Clear, Expressive, Quick And Processible

I have made some claims about the nature of reading as an activity, namely that it is a covert form of interaction in which the reader can take the initiative in the interaction by being dominant, or be submissive and dependent. I have been focussing, in other words, on the roles of writer and reader as addressee and addresser. Let me now turn to the topic of the written 'medium' of communication, and the 'knowledge' that the user has of it.

Reading involves the mobilisation of resources that the reader draws on in interpreting a text. These resources, though, are not there simply to be drawn on in the reading process, they are drawn on in listening, speaking and writing as well. That is, they are mobilised in any act of communication. (See Widdowson 1978). Identifying these resources is useful because they are a means of establishing comparisons between the separate skills areas - they provide a 'comparative framework' or underlying commonality- as well as a way of locating the individual differences in the processing demands of separate skills.

Here is a schema to summarise this explanation:



What is a resource? It is something you know, and something y you know how to act on. Now, I want to say here that these are two types of knowing, or knowledge- both contributing to the underlying resource: they are 'declarative' knowledge and 'procedural' knowledge. Knowledge 'that', which is

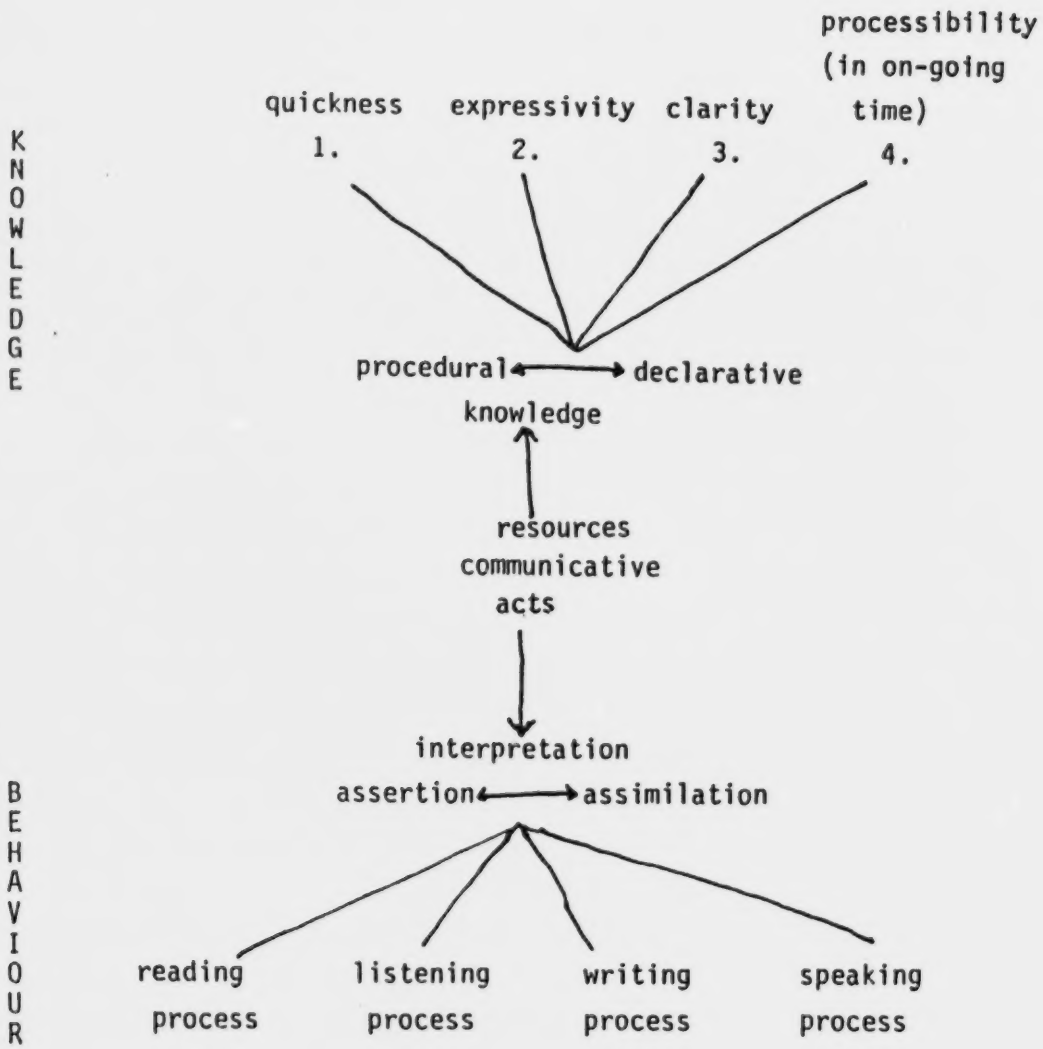
static and taxonomic, and knowledge 'how' which is actional and dynamic.

At this point I could go on and suggest that the former is equivalent to a knowledge of the linguistic 'system', or what Widdowson calls 'usage', and the latter is equivalent to knowledge of how it is converted to communication, or 'use' (see Widdowson 1978). But this simple chain of equivalences would not, I suggest, be useful as a basis for developing an approach to reading materials design.

declarative knowledge ----- static -------- the language system----usage

procedural knowledge ------ dynamic ----- communication --------use

As a generalisation this is a valid way of distinguishing these two kinds of knowledge. But what I wish to do is establish a more useful framework. The above distinctions would simply leave us the pedagogic task of describing the various ways in which the reader-user can act on his or her knowledge of the language system in reading. This would be an enormous task, what we need is an intermediate level of idealisation to make our observations of how these two sorts of knowledge are drawn on in reading more purposeful and convenient to our task of writing materials. I suggest,then, that the two types of knowledge I have identified above are both knowledge 'of' the four 'charges' that Slobin identifies as constraints on the evolution of language as a medium of communication. These are that language must be 'quick', 'clear' to the user, 'expressive' of attitude and 'processible' in on-going time. So what I am saying is that the language user has knowledge of the 'obligations' or charges which language has evolved to meet as a successful medium of communication, and since it is the user as processor who has imposed these obligations on it, this does not seem an unreasonable assumption to make. When we build it into our framework for describing the resources drawn on in communication we get a schema like this:



You will see that the schema divides into two halves, with communicative resources as the locus. The top half are those things we have knowledge of, and this is converted via communication into behaviour. Let me go into some further detail about Slobin's charges; expressivity, clarity, quickness and processibility.

4. Language Function - Language Use

To do thid I must present, in an initially simplified and hopefully accessible manner, the psycho-sociolinguistic orientation to characterizing language as a medium that Slobin (and others of course) takes. Language is the way it is as a tool of communication because it has evolved to do the things it has to do for the user. Function, and therefore use, are deterministic constraints on form.' When speaker and listener interact, the speaker wants to express him or herself clearly, efficiently, effectively and reasonably quickly. The listener, in turn, wants to quickly and efficiently retrieve a clear and informative message. These needs and constraint of speaker and listener shape the form of language.'(Slobin 1979:188).

What , then, does language have to do as a medium of communication. and how is this encoded (as a sort of linguistic reflex) within the language system? And,(importantly for our purposes in using these distinctions as a pedagogic basis for description,)how can we clarify the learners awareness of these reflexes?

Firstly it must be clear as has already been mentioned. Slobin says that, by and large, this means that the syntactic or surface structure must not be ' too different in form and organization from the semantic structure' which underlies it. Where grammatical rules and inflectional markers are clearly semantically motivated then they will, Slobin suggests, be more easily learnt by the child acquiring an initial language. So. for example, the Turkish inflectional system - with separate particles for number and case (in that order);

el	hand	eller	hands
eli	hand+accusative	elleri	hands +accusative

is easier to learn, because its underlying semantic distinctions are clearly mapped onto surface features, than a language which 'masks or 'fuses' such semantic distinctions within one inflectional form.

Conversely, the semantic distinctions may have more than one surface realisation , as in the case of those English nouns that mark the plural with a vowel change (mouse-mice) rather than a suffix. Again this will

be less clear than a one to one mapping. Let us say, for convenience here, that the charge 'be clear' corresponds to what Halliday (1973) calls the 'ideational' function of language - that aspect of it which serves to express content. Of course, given our pedagogic goals, it would be absurd to consider all of the syntax- semantics correspondences in language. Within the limitations of our goal, to develop purposeful reading strategies, I think we can consider that aspect of the charge 'be clear' which deals with the writers encoding of 'propositional' relations both within, and between sentences in discourse, That is we will be dealing with the writers encoding of 'semantic case-role' information within sentences, and the 'propositional-rhetorical' relationships of comparison-contrast, cause-effect etc. between sentences.

Now , unfortunately, in a way, as Slobin points out, the four charges are in partial competition. If we were perfectly clear and painstaking in our expression of what we meant we would offend the other charges. For example we would not be 'quick'. In speech this would mean there would be no elision of understood constituents, and ultimately, if we went on forever making our meaning ever clearer, we would not be 'processible in on-going time'. I have, in fact , been to many lectures (no doubt you have too) where the lecture was so clear that he / she sent everyone to sleep.

In writing, then. the effort to be clear leads the writer to over-textualise his message, in the way I referred to above. To be over-concerned to anticipate possible reader confusion. The effort to be quick leads the writer to under-textualise, and so create reader confusion. The writer, then, must strike the right balance between clarity and quickness.[2] In speech, where clarity and processibility are traded off against the demands of quickness this can lead to 'smudging' phonology, elision of inflections which then have to be replaced by other grammatical markers so as to ensure processing can continue. So one can see, I hope, that an awarness of how to be quick, clear etc. has consequences not only for the reader's response for the writer, but for the listener's response to the speaker- and vice versa: a comparative framework for the four skills areas and the processing demands they make on the language user. Note also that these 'user' motivations or demands on language as an instrument of communication are not particular to individual languages, but underly all language use, and so will be familiar to second language learners, as notions, though what they will lack is a knowledge of 'how' these motives are 'encoded' within the resources of the target language. I will return to this.

I have not yet dealt with the user's charge that the language be 'expressive'. This means that, in Slobin's words,' the speaker must have means for surprising, playing up to, or putting down his conversational partner; he must have the means of expressing relations of status and affiliation between himself and the person he is talking to'(1979:214).

The example of differences in levels of solidarity and status between speakers will serve as an illustration of how this relates to the other charges. Forms of address among familiars are expressive and quick (nicknames, pet names etc) whereas for those more distant and senior acquiantances it is more usual to give fuller forms, including titles which are expressive of seniority and consequenotly demonstrate a lack of solidarity between addressee and addresser when used.(His Royal Highness the Prince of Wales: Mr President etc.). In written text too there are various options regarding choice of style which are expressive of levels of formality , seriousness of conviction, sense of importance etc. I have equated the charge be 'clear' with Halliday's ideational function, and I would like to equate this charge, be 'expressive' with his 'interpersonal' function of language which governs all available ' intrusions into the speech act'(1973) which a speaker has as options in the language . I have made some functional distinctions here, but it remains for me to show how they are 'encoded' in language, and how to develop reader awareness of this.

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2. It strikes me that footnotes, like this, are a legitimate way of over-textualising a point. The reader may refuse the option of following up the added support information they offer on certain points. The point I wish to add a supplement to is the fact that the 'charges' are in constant competition. It is as a result of the effects of the diverse charges, to be quick and expressive on the one hand, and processible and clear on the other, that language is in continual evolution as a means of communication. We can distinguish , then, between two functional motives- the <u>indicative</u> function of language as a means of expressing <u>social identity</u> which will lead users to differentiate themselves as a group from other users by creating 'quick' and 'expressive' modified languages, and the <u>communicative</u> function of language purely as a means of conveying messages.These two functions always co-exist in tension; the one tending to pull language into diverse social 'dialects',

5. Motivation And Coding

In the previous section I have been operating with a covert distinction which now must be made overt. This distinction is between the motivation to be clear. expressive, quick and processible, which user's have , and the way these motives are encoded within the language system as as functional resource. To the extent that there is such encoding then in Hallidayan terms the language is a system of 'meaning potential', or opportunities for choosing language that matches the user's intention to be quick, expressive etc. for whatever social or communicative purpose she may have. (see note 2.).

Now these are broad generalizations, and the equivalences I have sketched are simply for the purposes of establishing a framework, and an orientation, fo examining , ultimately, what awareness of these motives means in terms of decisions about how to develop the 'behaviours' of listening, reading etc.

Our focus here is reading. It seems to me that as readers we have to have knowledge of what resources the writer has available for encoding expressiveness in order to identify them when they occur in the text. Say the writer begins a letter, 'Dear Sir or Madam....'; we have, as readers, to be aware that the functional convention that governs the choice of this form of address has consequences for our understanding of the role he or she is adopting towards us. Similarly with clarity. We have to be aware of the encoding resources available to the writer for being prppositionally clear in order to fill in the gaps he has chosen to leave in the interests, say, of quickness. e.g.

Sally went to the disco, and Peter did too.

'Did' what? 'Went to the disco'of course'. And so the reader

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the other pushing it back into conformity with common communicative purposes and standards. So, for the child, language which is clear and processible is easiest to learn, and the communicative function can be said to be uppermost but as the child develops and uses language as a means of expressing a sense of self in relation to others the indicative function becomes highly valued. A similar sequence can be observed in the development of pidgin languages, as Schumann and others have observed. The pidgin is typically clear and processibl

progresses through the text, continually reconstructing the encoding choices faced by the writer at each point in composition (or that part of text the reader is concerned with) and interpreting the evidence in the text against, or through, his knowledge of the underlying motives he presumes are available to the writer, together with a shared knowledge of the functional conventions governing their encoding. Can you be clearer?- I hear you ask. I will try.

For example ;

Wr. Sally went to the disco, and Peter did too.

R. What does 'did' refer to? (reconstruct the writer's choice)

Reader as Wr. 'went to the disco' or 'did'

R. Why choose 'did' (reconstruct the writer's motive)

Reader as Wr. 'did' is quick, but not so clear.

and so it could go on. In this way, by reader reference to a shared knowledge of the motivations which underly the writer's functional choice of selections from the language code the reader is able to attribute significance to the choices understood to have been made. In order to do this though, ourselves, as readers, we have to learn the reflexes functions have in language, how they are coded.

In other words we have to learn that , to be quick we can use the pro-form 'did', but to be clear we must use the full form 'went to the disco'. Obvious perhaps, but although the motives will be intuitively obvious too to the second language learner, the ways in which

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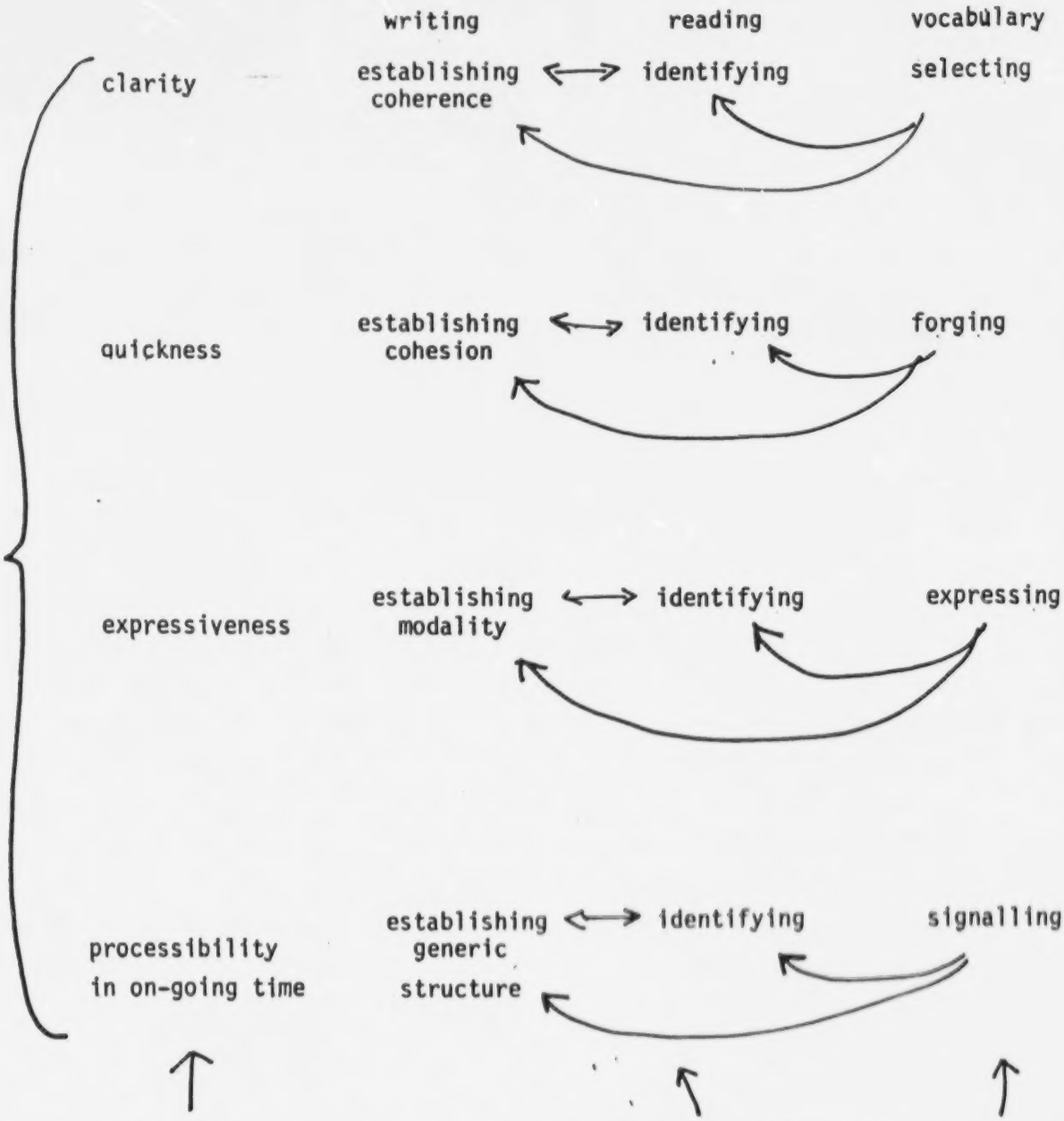
and evolution towards a creole involves adding resources for being 'expressive' and 'quick' to the language, which then becomes a means of expressing national identity. In this way, it has been claimed, ontogeny mirrors phylogeny, the development of language in the individual reflecting its development in the species. To what extent is, and should, this progression be represented in language teaching materials? It is not so simple as it might seem. One argument could be

they are encoded, or the reflexes they have within the target language system, will not be obvious at all. This, then, is a framework for pedagogy to make use of - a skeleton, as it were, of shared motives underlying the use of the L1 and the L2, to which we can relate the flesh and bones of the encoding language system in a purposeful way. At this point I refer you to my final schema on the following page which I hope to make clearer in the final section below.

6. The Reflex Of Function In Language

In the preceding section I have tried to show how , taking a socio-psycholinguistic perspective on reading, the reader interprets, or acts on his knowledge of the resources,and motives for deploying them,he assumes he shares with the writer. I have shown how the non-reciprocal activity of reading and writing can be seen as similar to reciprocal conversation. But how different are the two forms of activity.

that by continually attempting to make ourselves clear and processible to the learner we are denying them access to experience of quickness and expressive forms of language. This has many consequences: as Gillian Brown has pointed out it can lead to listening comprehens-on materials which fail to develop strategies for dealing with the elisions, hesitations and incompletenesses that characterize normal spoken discourse(1978). Within Krashen's framework, over clear processible input fails to provide the learner with the +1 in the n +1 formula which he claims is essential to acquisition. Perhaps his intuitively appealing distinction can be re interpreted within the framework I am proposing: learning is the process of understanding how to be clear and processible in communication; acquisition is an ability to handle the resources the langugae user has for being quick,a nd expressive. Some re-interpretation of Krashen's position is obviously necessary. From the point of view of reading the claim is easily made; if we don't expose learners to text which represents the user-writers mobilisation of the full resources of language we will not be developing their ability to process such text adequately. It is Brown's argument for authentic listening materials transferred to reading materials. But it is not the text, note, which is authentic, but rather the learner's response to it by drawing on an awareness of the full resources the language has for being quick, clear, expressive etc. But I repeat myself again.

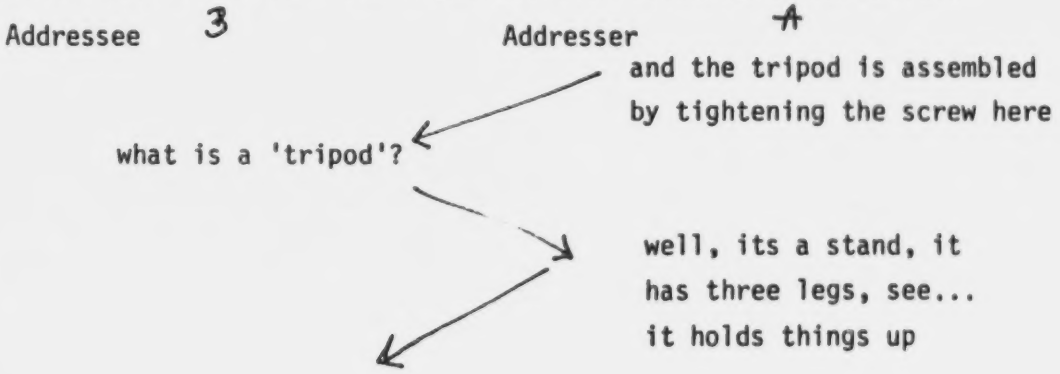


Slobin's four 'charges'; language evolves, and is produced to serve these simultaneous and often conflicting demands on it as a medium of communication and exchange.

reading and writing are in a way converse processes whereby the writer/reader establishes or identifies the formal linguistic means the reader/writer must deploy to meet these constraints.

vocabulary is seen in relation to the function it has in establishing/identifying procedures.

I have claimed (see the shema on page 10.) that the behaviours of reading, listening, writing and speaking involve the twin interpretative acts of assertion and assimilation. In speaking and listening, the speaker typically asserts a meaning or proposition which the listener has then to assimilate. The conduct of face to face conversation is a process of asserting and assimilating , or of explaining and trying to understand, so that the participants can 'acheive' a convergence of 'worlds'. For example, in a technical classroom one might get the following conversation;


Addressee 3
Addresser A
and the tripod is assembled by tightening the screw here
what is a 'tripod'?
well, its a stand, it has three legs, see... it holds things up
oh, yeh

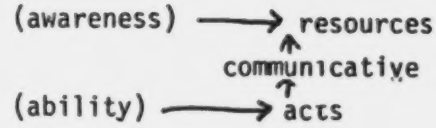
Quite a one-sided conversation of course, but not entirely so, the second speaker is still able to indicate lack of understanding, and the first participant's response is to try and 'assimilate' the content he/ she previously 'asserted' so as to make it 'accessible' to the second participant. In other words he supports a previous statement with an example. In less interactive face to face discourse, where there is less opportunity to interupt- say a lecture. the lecturer will typically anticipate these interventions and enact assertion and assimilation within the extended turn of monologue. Hutchinson and Waters (1981) give an example of this;

Addresser
↓
Addressee
↓

Copper is.... 'ductile' What do we mean by ductile? It'll stretch , yes, we can change its shape.

Monologue like this is very close to the condition of written text. In writing though there is no opportunity for the interlocutor to signal the need for explanation or paraphrase to support an assertion, so, as I have said, the writer has to anticipate the possible need for such

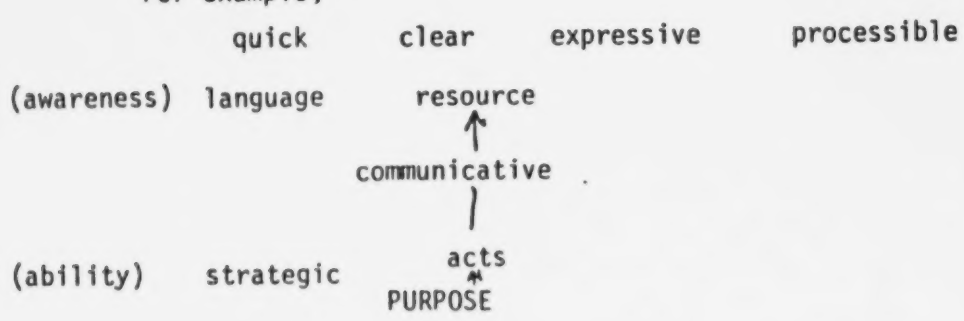
support information. Despite this difference the four processes (reading etc.) all draw on a shared knowledge of the resources needed to perform such acts as assertion and assimilation. In reading then we need to develop the ability to assert and assimilate, or to be dominant and dependent where necessary with regard to written text. We also need to develop awareness of how the motives, be quick, clear etc. are encoded as a resource within the language a writer makes use of. In other words we need to pay attention, pedagogically, to developing learner awareness of resources, and developing ability to act on those resources.



I will be concerned in this section only with illustrating the link between the various motives and their encoding. I will not be concerned directly with the question of how to develop learner ability to act , rather I will be concerned with describing what the learner needs to be aware of as a basis for strategic action.

A brief exemplification of the nature of this strategic action is in order though, before considering the fine detail of what resources are available for the reader-interpreter to act on. And here the crucial question of purpose must be acknowledged. No reader needs a stratgey, or needs to act on a text interpretatively without a purpose. The reader's purpose will determine the strategy, and the resources drawn on by the strategy, he or she chooses. I am afraid, then, another diagram is needed here;

For example;



As a result of a purpose the reader will act strategically to identify the motives underlying the writer's use of the language in a text;

For example; Purpose - You want to know how to remove some paint from your carpet that you spilt while decorating - does this help?

Household Hints

1 I always seem to have trouble when painting skirting boards with either the carpet flapping back on to the wet paintwork or being left with a crease if folded back too firmly and held in place whilst the paint dries.
2 I now fold the carpet back, paint the skirting and then place scrap pieces of wood diagonally (at approx 30°) from floor to wall. The carpet happily leans against these until the paint has dried.
3 (Whilst correct practice is to remove carpets completely before decorating, we do accept that this is not always practical. – Ed.)
(*Practical Householder*, May 1980, p. 14)

i) Identifying The Writer's Effort To Be Clear- Understanding

What does the reader need to know in order to be able to act on the writer's effort to be clear, and so acheive understanding? He needs to know how propositions are formed, intra-sententially, and how they are combined inter-sentially. In other words he needs to know how to identify who did what to who and with what, i.e. be aware of semantic role, and to know what value propositions have in combination, i.e. be aware of their rhetorical function . Both of these resources in the language are typically associated with the means available for creating coherent text. ' Coherence is both inter-propositional and intra-propositional....A single clause may... exhibit both intra-propsitional coherence (e.g. Agent Action), and inter-propositional coherence (e,g. Cause-Effect)'(Crombie 1985). For example;

He intervened. Therefore she was defeated.

In this example the first sentence encodes the roles of Agent-Action, while realising the role of Cause with respect to the second sentence. The following taxonomy of these relations , intra and inter propositional, is- I acknowledge it, necessarily partial(i.e. incomplete) and derivative (primarily from Crombie 1985 and her sources). My point in listing these relations, is, as I have said, to provide an operational definition of the ways in which the motive 'be clear' is encoded within the language system of English, so as to provide a point of departure for pedagogic conrivances which seek to develop an awareness of such resources in the second language learner. This awareness is a necessary basis for the types of interpretative action I have described.

The linguistic 'label' given to this group of resources is 'coherence'. The label I suggest we give to the group of strategies the learner draws on in attempting to identify the writer's manipulation(or not) of these resources is 'understanding'.

a) Intra-sentence relations.

"Semantic roles' are the functions performed by the argument/s of a proposition in relation to its predicate. Knowledge of them has been assumed to be universal (Fillmore 1971: Nilsen 1971: Crombie 1985). Nilsen presents exercises for developing learner awareness of case.

The functions performed by the arguments of predicates is determined to an extent by the type of predicate. Verbal predicates are of three types : 1) Dynamic activity:mental/ or physical 2) Process f) no active,conscious activity 3) Stative non-active

a) Geberal activity (write)
b) Momentary activity (nod ,wink)
c)Transitional event (arrive,leave)
d) Mental activity (choose,decide)
e)Factitive or constructive(build, create)

(deteriorate/boil)

g) imert cognition (like) (understand)
h) Relational (own)

Predicates can also be nominal or adjectival when occurring with a copular verb (is, become, grow, got, appear etc.) states a) Material (It is broken)
b) Experiential (He appears happy)

processes
- c) Material (It became sour)
- d) Experiential (He got excited)

There are many discussions of the number and type of roles that could be identified. Somers(1987) is a good summary. Here is Crombie's classification;

a) Causal roles;
- Agent — Peterasked the question.
- Instrument — Di ate the soup with a spoon-
- Force — Smallpox killed Gerty

b) Participation roles: i) Activity

a, b, d,
- Patient — He kicked the dog
- Assignee — He awarded a goal to the team

ii)Factitive

e,
- Material
- Result — She makes castles out of sand

iii)Process

f,
- Mutant — The butter melted

iv) State

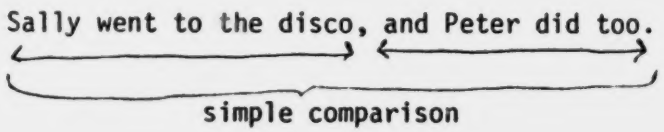
g, h,
- Durant — The door is green
- Experiencer — He heard music
- Appertainant — He heard the music

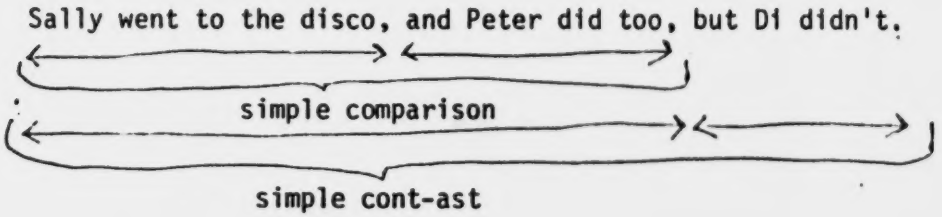
c) Orientation-Transition roles:
- Object — The book is in the drawer
- Source — The flu went from Di to Jo.
- Goal
- Range — The egg rolled down the hill

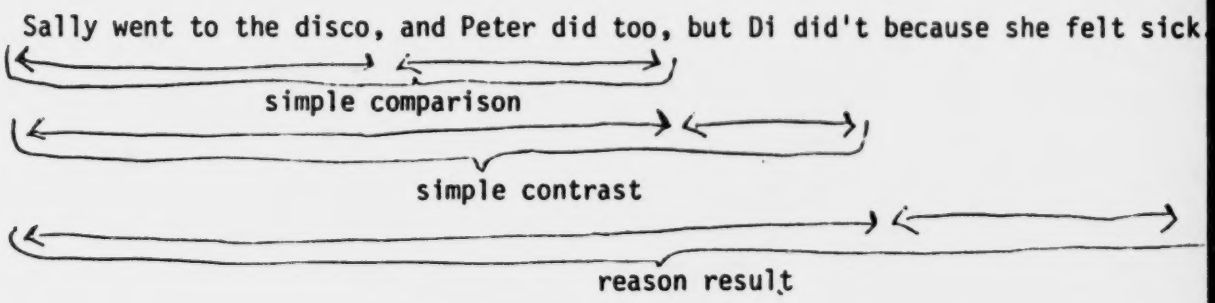
d) Relational roles:
- Referee — It concerns him
- Referent — It concerns him
- Quantant — It costs ten dollars

b) Inter-sentential relations.

The relations to be outlined hre are esentially binary , that is, they are defined by their 'relation' to other elements in a discourse. For example;

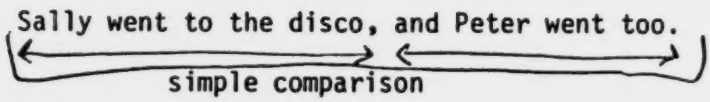




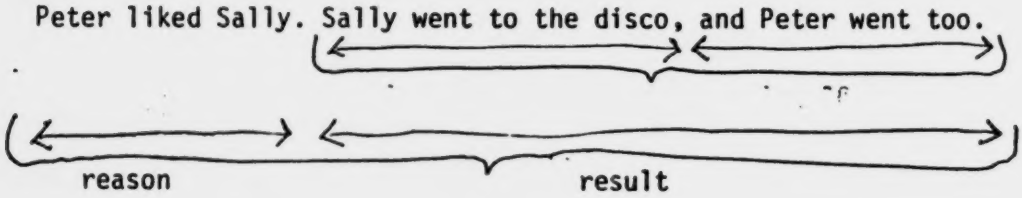

Sally went to the disco, and Peter did too, but Di did't because she felt sick.
simple comparison
simple contrast
reason result

And so it could, and does, go on- each discourse proposition having a 'value' which is the result of a 'relation' it contracts with another term in the discourse. 'These relationships provide the semantic underpinning for - and are, therefore, a necessary aspect of - the interpretatic of all coherent stretches of language which extend beyond the expression of a single proposition'(Crombie 1985:33).(see also Beekman, Callow 1974: Winter 1977: Hoey 1984).

Such propositional values are not fixed and inherent, but the result of context, or written co-text, to which the speaker, or reader, attributes relevance in the manner described by Grice(1975). For example.



What relevance has the information that Peter liked Sally? It could explain the motive underlying Peter's action in the second sentence. This interpretation leads us to attribute the following inter-propositional 'values'



Notice that although the intra-propositional semantic roles are the same, the inter-propositional values they contract as larger discourse units is not fixed. They are affected by co-text, and this is a consequence of their binary nature. 'Unitary' values, like 'warning', 'promise' or what Austin(1961) and Searle (1971) call 'illocutions' are related to, but different in this respect from, the relations at issue here. I will reserve the resources the language has for creating, or marking illocutions via 'IFIDS' (see Searle 1971) or 'performative verbs' which are to an extent impermeable and fixed, for that motive Slobin calls 'be expressive', and Halliday attributes to the interpersonal function of language.

There are two further points to make about these relations, before I give a brief taxonomy of them based on Crombie. Firstly, their unfixedness means that the language user is continually 'alive' to the possibilities that lie ahead, and makes 'predictions' about what 'values ' propositions could be realising. Predictions are to a large extent guided by lexical signals of such relations, e.g. because, therefore, so , and etc. and the capacity to predict on the basis of lexical markers like this while reading dominantly is an important aspect of 'scanning' . Secondly, Crombie claims that there are a limited number of such relations, and that they are universal. Like awareness of semantic roles they hold out the possibility of establishing a

helpful 'comparative framework' for establishing the L2's resources for encoding the writer's motive 'be clear', to which the second language learner will already have been exposed via his/her first language processing experiences.

Here is Crombie's list of such inter-propositional relations:

Temporal relations:

a) chronological sequence

He placed the ball on the spot and then they kicked off.

b) temporal overlap

As the Steelers kicked off the crowd cheered

Matching relations:

c) simple contrast

Gerty supported Penn State but Di shouted for Pitt.

d) simple comparison

Gerty was a student and Di was too.

Cause Effect relations:

e) reason result

The quarterback was useless so Pitt lost

f) means result

Penn beat Pitt by keeping possession and good tackling

g) grounds conclusion

Penn beat Pitt so they should beat Duke

h) means purpose

Di left the game early to avoid seeing Pitt lose

i) condition consequence

If Peter had played Pitt would have won

Truth and Validity:

j) statement affirmation

Gerty said Penn were good and I agreed

k) statement denial

Pitt won. They lost

l) denial correction

It isn't Tuesday it's Wednesday

m) concession contra expectation

Although Peter liked the game he hasn't been to one since the

Alternation relations:

n) contrastive alternation

Either you like Pitt or you don't.

o) supplementary alternation

Nobody was actually injured or carried off

Bonding relations:

p) coupling

Penn wear white shirts and white trousers

q) cpntrastive coupling

He tried to remember Pitts colours, but he failed

r) statement exemplification

Football can cause arguments; remember that fight on Friday

s) statement exception

Football games are well behaved. An exception was last Friday

Paraphrase: t) antonymic and synonymic

It isn't good , it's a bad thing! He's a scrapper,a thug.

Amplification:

u) term specification

Copper can stretch; it is ductile

v) predicate specification

He regretted not studying philosophy

w) term exemplification

All ductile materials, copper for example, can be stretched

Setting /conduct relations:

x) event location

The atom wassplit at the labotatory in Cambridge

y) event direction

The bacon jumped out of the frying pan

z) event manner

He eyed the bacon greedily. The bacon sizzled, nervously.

For a fuller description of these relations see Crombie (1985). This is an example of how some of the resources available to th writer for being 'clear' are coded in English. Note that many traditional reading comprehension questions are directed at developing awareness of, or of 'testing' knowledge of these relations. e.g.

e) Why did Pitt lose? m) Did Peter like the game? etc.

Sometimes the question is directed at eliciting reader awareness of semantic role. e.g.

What killed Gerty? What does she make castles from?

Note also that with respect to genre certain text-types may have a particular emphasis on some of these relational types. For example expositio scientific text will draw heavily on the use of cause-effect relations, and on amplification. There are implications here, then, for task types which

can harness specific reader purposes in reading to possibly frequent forms or relational types. For example, asking students of scince subjects to identify amplifications (Which word or phrase means the same as----), or to find cause of X, Y etc. There is also the prospect, already mentioned, of identifying text-types which have specific rhetorical structures, or set sequences of relational types which form 'schematic ' macrostructures or patterns. This , though, I wish to reserve for the discussion of 'processibility'. I have been concerned here with the 'resource' for acheiving clarity. Now I will discuss the resources available to the writer for being 'quick'.

ii) Identifying The Writer's Effort To Be Quick- Following

Here we are concerned with the resources in the language the writer draws on for shortening or condensing his message. The reader must be able to 'follow' the thread of meaning, and reference, through the text despite these shortcuts, which may subvert the motive 'be clear'.

One resource I have already cited is that of pro forms like 'did', and 'do'. Another is the use of elision. Both of these are aspects of what Halliday and Hasan have termed 'cohesion', the resources available in text for binding the message to gether into a whole. Accordingly, on the microtextual level, this motive is realised via the 'textual function' language, . together with 'processibility ' at the macrotextual level.

Here are some examples of cohesion, drawing on Halliday, Hasan(1976) which realise the motive be quick:

Reference:

a) exophoric; outside the text, in the context of situation

I am talking to him . (over there)

b) endophoric: within the text

i) anaphora- personals

John opened the door. He came in.

- demonstratives

Some flowers please. These are the ones I want.

- comparatives

John wrote a good letter. Mine was better.

Often anaphoric references like this can form lengthy cohesive chains which might cause the reader problem. Exercises on cohesion were a feature of the English In Focus series, and Swales comments favourably on their usefulness(1985). The Reading And Thinking In English series included comprehension checks on cohesion in the -argins of the texts as a way of drawing the reader's attention to the qualities of 'discourse in flight' to use Widdowson's terms.

More unusually such proforms and comparatives cab refer forward 'cataphorically' as in ;

ii) I'll never forget him. John was a good man.

The quickness of cohesion is most obvious when the proform substitutes for a whole clause rather than a proper noun like John

Substitution and Ellipsis:

nominal substitution

This pen leaks. I must get a good one.

I'll have bacon, egg and beans. I'll have the same.

verbal substittion

I love eating mushrooms.

So do I.

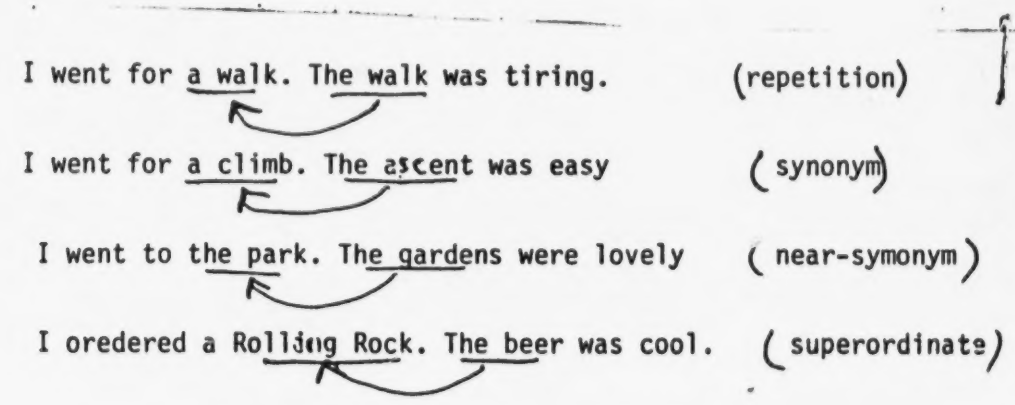
clausal substitution

If you 're from Manchester you must have tried tripe.

I think so.

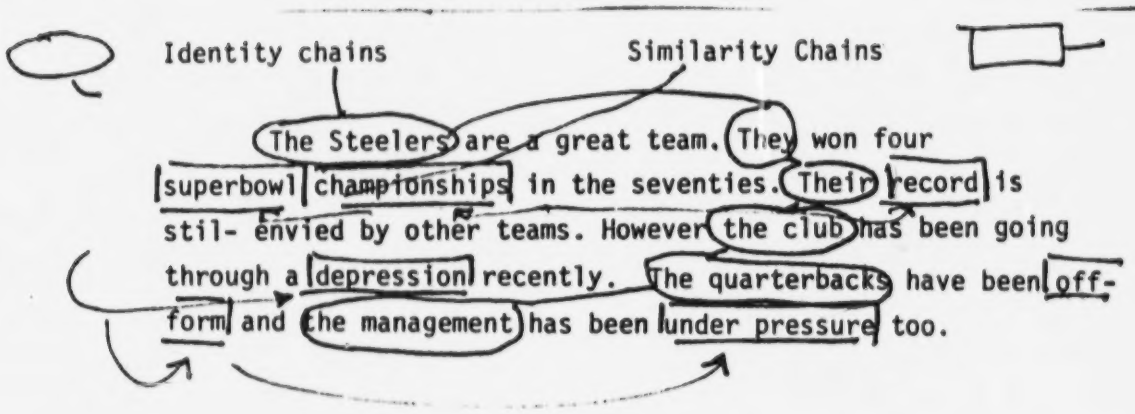
Lexical cohesion:

this clearly overlaps with the use of synonyms and antonyms in the preceding discussion of paraphrase and amplification relations between propositions, since it involves the use of equivalent and opposite terms.


I went for a walk. The walk was tiring. (repetition)
I went for a climb. The ascent was easy (synonym)
I went to the park. The gardens were lovely (near-symonym)
I oredered a Rolling Rock. The beer was cool. (superordinate)

Arguably too this is not always a resource drawn on for the purposes of being quick, but for the purpose of either being expressive, more clear, or all three. The superordinate is quicker, but less clear; the repetition is neither quicker, nor clearer, while the use of synonyms seems is expressive, but not of attitude- rather it is expressive of the individual writers sense of relevant background knowledge. By this I mean that for him a park is a garden, and he has chosen to show this; for him the two words 'connote' each other. Hasan (1984) has made a distinction which we can use to clarify the area of lexical cohesion.

She distinguishes an identity chain, the purpose of which is to refer the reader forwards and backwards primarily through the use of pro-forms, and similarity chains which are not text-bound and which reflect the writers sense of semantic fields which lie outside the immmediate province of the text. The former are 'existential' choices, conditioned by the specific text, the latter are 'non-existential'. The former denote while the latter connote. The former I think are primarily a resource the writer draws on to be 'quick', while the latter are a resource he has available for 'expressing' his sense of world-view. For example;


Identity chains
Similarity Chains
The Steelers are a great team. They won four superbowl championships in the seventies. Their record is stil- envied by other teams. However the club has been going through a depression recently. The quarterbacks have been off-form and the management has been under pressure too.

One can see then that identity chains are largely grammatical, while similarity chains are lexical; similarity chains in the example above are the result of two lexical sets, illness and football being imposed on the text, with collocates identified as belonging to each. The illness set conveys 'attitude'. In contrast the identity chain is neutral regarding attitude and following it helps the reader follow the thread of topic quickly. Let us say that identity chains signal topic quickly and lexical sets. or similarity chains signal 'attitude .

Many studies have been done of the effects of cohesion on readers interpretation of text, and writers differential use of the resource.(see readings under cohesion and quickness in the bibliography). One distinction that seems useful to me pedagogically is that between 'static' and'dynamic' cohesion. This relates to the distinction between identity chains and similarity chains. Static cohesive ties maintain relationships established in a text, they maintain the topic, while dynamic cohesive ties serve to develop new relations and to introduce new or subsiduary topics. (Hartnett 1987) Ability to recognise use of static cohesive signals will enable the reader to move quickly through a text, 'following' the topic; ability to use dynamic signals, and recognise their use, is important to enabling the reader to recognise topic-shift. However, mis use of, or inability to recognise the 'dynamic' signals can impair the readers ability to follow the development of topic. The motive underlying the use of 'dynamic' cohesive items then

	Static		Dynamic
Quickness	repetition demonstratives pro forms substitution and ellipsis lexical cohesion	Clarity	temporal conjuncts causal and adversative conjunctions hyponym v. superordinate as expressive of logical relationships
	(topic maintenance) obligatory , common		(topic manipulation) optional, sparse

is be clear, but excessive clustering of such ties can slow down the reader, and cause confusion.

Along with cohesion I think we can consider the use of headings and sub-headings as a means the writer has of being quick. Similarly the use of diagrams to exemplify points in the text is a way of avoiding more lengthy explanations. It is also a way of being clear. I am considering it under this heading though because it seems to fall within the preserve of 'textuality', more than of content. However, it is obvious by now that various resources realise more than one motive at a time. A synonym can be quicker than the original term, clearer in terms of giving an exact picture of the thing referred to, as well as more expressive of attitude.

These then are some of the resources available to the writer for being quick; the use of pronouns and proverbs; the use of headings and sub headings; the use of diagrams to illustrate ideas and summarise points; the use of nominal, clausal and verbal substitutes as well as elision of assumed to be understood constituents. Occasionally the writer can also refer the reader to extra-linguistic sources of information to supplement the text, thus avoiding attempts to reproduce this textually, or reference can be made to other literature, works by other authors (see.....etc.).

I have made ample use of these devices myself in the interests of condensing what I have to say, so being 'quick', and I hope this has not led to loss of clarity for you, my reader. Let me turn from such shortcutting devices now to the motive 'be expressive' and its encoding.

Identifying The Writer's Effort To Be Expressive- Identifying

We are concerned here, essentially, with the resources the

writer draws on to acheive or create 'unitary' illocutions like 'warn', 'persuade' etc. That is, the reader's identification of the 'speech act' the writer is performing via the text.

Here, as in the previous section, we have to understand that 'expressiveness' is as much a matter of what the writer does not say, as of what he does. It is, if you like, often a case of ellipsis not for the sake of quickness, but to generate implicature. What do you mean? I hear you complain. Let me try to be clearer.

Consider this conversation ;

A: Jock was a good student wasn't he eh?
B: I never taught him. What do you think Dick?
C: He always handed his homework in!

Was he a good student? What do B and C <u>really</u> mean ? Let us assume, as Grice says we do anyway, that they are 'co-operating' by following these maxims:

Quality- try to speak the truth, do not say what you believe to be false
Quantity - say just enough, not too little or too much
Relevance - make sure your contribution is relevant
Manner - be brief, avoid obscurity

Grice says speakers attempt to interpret what they hear as conforming to these maxims. Their interlocutors know this and this provides them with a way of 'implying' things. B and C will be heard by A, in other words, as relevant . The fact that C can only say he handed his homework in on time means that this is the only sense in which, for C, he was a good student, since C is understood to be both relevant and true. This means, of course, that other criteria for goodness - i.e. intellectual perspicacity etc. - are not involved in C's judgement, and therefore not true for him. C says, in other words, that the student wasn't clever. B is assumed to be relevant and true.

However, our assumption that B is being true is not necessarily valid. Supposing both A and B as well as C taught him, and each knows this. What maxim is B then 'flouting'? That of truth or quality. This deliberate 'flout' implies information about B's attitude, i.e. that he is being ironic, saying what he doesn't mean. But is it a lie? Well, there is a 'way' in which you can teach, without teaching; that is, you can try to get information across, but without succeeding. Perhaps this is what B could have meant non-ironically. Again, it implies Jock wasn't a good student. [3].

Now why, you might ask, do they not give a straight yes or no in answer to A's question? Here I must refer you back to my second note. One answer is that language does not only serve the communicative function, via clarity and processibility, it also serves the indicative function and is expressive of social identity. Both B and C are , in the end, clear about their opinion of the student, but they resort to indirect means for making their point. What B does, assuming he lied, is draw attention to the difference in status between himself and the student, or topic, and distances himself by being relatively formal and expressive therefore of his 'power' over the student (See Argyle 1970) via his role as 'teacher'. He is indicating a difference in status which relates to the 'territorial' imperative discussed by Argyle. This is equivalent , in writing, to the writer's choice on the cline of functional tenor, (see below). This involves stylistic decisions about whether to appear 'didactic' or not and is essentially the preserve of the 'power semantic'.

C, however, is not so concerned with status. What motivates his decision to be a little unclear is the desire to find something good to say about the student. He does this by saying he took his books back, and demonstrates, to an extent, a degree of 'affiliation' or what Brown and Gilman 1960 call 'solidarity' with the student, despite his poor performance. In other words he demonstrates a degree of identification with the student. This also has an equivalent formal resource in the written mode, and corresponds to the writer's decision regarding 'personal tenor', (see below) the extent to which the writer indicates the formality or not of the message by choices, principally, in the pronominal address system.

The writer then can make overt the stylistic indicators

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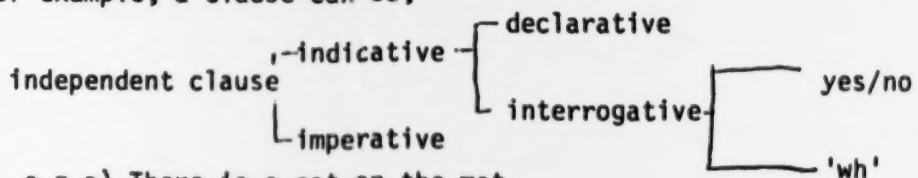
3. See Sperber, Wilson (1986) who would force this analysis through their insistence on 'relevance'. However, my 'ironic' analysis below seems just as good to me, assuming 'indicativeness' is as valid as 'informativeness'.

opinion and expression available to the reader. These are typically those linguistic features which Halliday groupd under the linguistic resources of the interpersonal function; awareness of clause type- mood and modality. For example, a clause can be;



e.g.a) There is a cat on the mat
b) Is there a cat on the mat?
c) What is on the mat?
d) Place the cat on the mat!

(see Halliday 1973:56, 1985)

and each of these casts the recipient of the sentence in a particular role as regards the speaker. There are also markers of modality, typically modal verbs; must, should, could, will etc. These have been grouped into various notional schemas by Wilkins (1976) and others.

We may then wish to preteach functional correlates of agreement, disagreement; advising, warning etc. However, note that this undermines the position I have just described - that function, or illocution is primarily a matter of attributing 'value' to utterances in context, and there are no fixed form function correlates of opinion or 'what the writer is trying to express about his or her orientation to the reader'; they must be computed in context. The reader 'confers' value.

Given this proviso we can attempt to develop awareness of those 'performative' verbs 'warn', 'promise', 'instruct' etc. which are said to accomplish the speech act they accompany. There are also many markers of 'formality'. These can be forms of address which are expressive of the role speaker, writer presume is relevant to the discourse. e.g.

Dear Sir or Madam, Gerty, To the Reader etc.

In some cases the writer will attempt to make the illocutionary force of a propsosition or message overt by using conventionalized markers of agreeing, disagreeing, warning, advising, complaining etc. The reader must be alerted to the phrases which normally accompany these.

Similarly the reader needs to be alerted to the differing levels of formality possible in address systems which writers judge expressive of accepted social relations. There are also modal verbs whcih are used to indicate writer orientation to his or her message, and phrases like 'in my opinion', 'some say that..' etc. which writers use to indicate the degree of 'affiliation' they have with an idea.

Let me summarise these resources for encoding the motive to 'be expressive';

i) Performative verbs, e.g. 'warn', 'forbid' etc.

ii) Mood, i.e. declarative, imperative or interrogative sentence types

iii) Modal verbs, e.g. 'maybe', 'should', must' etc.

iv) Affiliation phrases, e.g. 'in my opinion', 'it is commonly thought', ' i strongly believe' etc.

v) Address sytems, e.g. 'Jack', 'Dear Sir' etc.

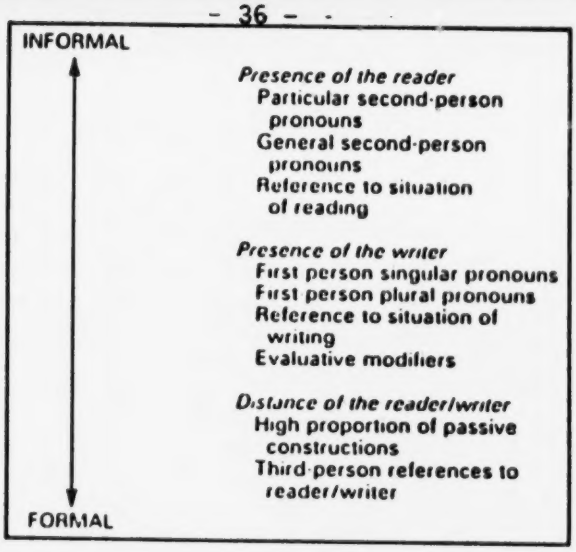
vi) Notional markers of certainty, agreement etc.

v-i) Markers of intended audience, topic, and purpose so as to compute relevance and implicature.

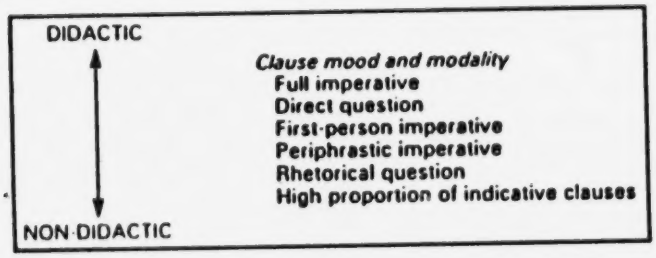
viii) Markers of institutionalized 'modes' like advert, manual, newspaper etc. which assume addressee-addresser roles.

In describing the expressiveness of writing we are concerned principally with the writers tone, for example formal or informal, and with the writers purpose, for example to persuade or inform. Both of these are aspects of what Halliday calls a texts 'tenor'.

Gregory and Carroll(1978) suggest that there are in fact two sorts of 'tenor'. The first concerns the tone of a piece of writing, and is realised through choices of linguistic features along a cline from informal to formal, as below; this is concerned primarily with options available in choices relating to reader or writer presence. For example, 'you' as direct form of address to reader is informal, while absebce ofreference to reader or writer, i.e. impersonal 'one', is formal.



The second, functional tenor is actualized through choices of mood and modality. e.g.



Personal tenor I have identified with the speaker's choice along the axis of 'solidarity' or 'affilliation'.

formal ⟷ informal

low affiliation(solidarity) ⟷ high affiliation(solidarity)

Functional tenor I have identified with the speaker's choices olong the axis of 'power' or 'territoriality'.

didactic ⟷ non-didactic

submission (dependence) ⟷ power(dominance)

The indicative functional choices availbble to speakers thus have their functional reflex in the written mode. Here is a formal, text, which shifts to informal in the middle, while remaining non-didactic.

Notice how in this example the writer shifts from the use of impersonal reference, and thus formality in paragraph one, too more personal and informal refernce in paragraphs two and three, then back to formality in paragraph four..

[1] The advent and development of recombinant DNA *has been portrayed* as very much a mixed blessing for mankind. [2] While *proponents* have hailed it as a source of technology that will someday solve many of the problems of environmental pollution, food and energy shortages, and human diseases, including inborn genetic disorders, its *opponents* have *bitterly* criticized research in this area because of the possibilities for accidental development and release of *highly* virulent forms of infective agents that *may* lead to epidemic diseases of unknown proportions. [3] The wisdom of developing bacterial strains capable of expressing genetic segments of eukaryotes *has also been questioned*. [4] Each view *is supported* by major groups of scientists.

[5] The *basic* problem in reconciling such *sharply divergent* viewpoints is that in most cases both the benefits and the biohazards that *have been ascribed* to the development of recombinant DNA technology are *highly speculative*. [6] *Today, we are still far* from any *demonstrated* success at producing antibodies or blood-clotting factors by fermentation, or making plants fix their own nitrogen because of insertion of bacterial nitrogen-fixation genes. [7] Conversely, however, the suggestions of E. coli harboring human cancer or cancer virus genes or developing *highly* virulent traits because of accidental introduction of uncharacterized DNA segments *appear equally far-fetched, speculative, and exaggerated*.

[8] *This article* has two purposes. [9] First, *I* should like to list and discuss some of the *major* areas where *beneficial* applications of recombinant DNA technology *are envisioned*, whether in the near or in the more distant future. [10] Second, *I* should like to note certain of those areas where both the barriers to technological success, and the potential hazards attendant upon such success, *appear* to be of *less formidable* proportions. [11] *I* believe that *we may* harvest some *tangible* benefits within a *relatively short* time, and with *little* risk, if we develop the new technology in a *meaningful* way.

[12] Apart from scientific applications toward the greater understanding of the nature and mode of regulation of eukaryotic genes, several broad areas of application of recombinant DNA technology *are recognized* in industry, agriculture, and medicine. [13] Briefly stated, these are (1) in the manufacture of drugs, chemicals, and fuels—specifically, polypeptide hormones, vaccines, enzymes, and low-cost fermentation products such as solvents, alcohol, and methane; (2) in the improvement of crop plants and crop yields, both by the extension of existing cross-breeding technologies and by the incorporation of nitrogen-fixation genes into either the crop plants themselves or their normal microbial symbionts; and (3) in the treatment of genetic disease, by deliberately introducing fragments of functional eukaryotic or prokaryotic genes into the cells of human patients [A. M. Chakrabarty, 'Recombinant DNA: Areas of Potential Application,' in Jackson, D. A. and Stich, S. P. (eds) (1979: 56-66), *The Recombinant DNA Debate*, Englewood Cliffs, N. J., Prentice-Hall: 56–7.]

In contrast the following example (from Smith 1987) shows less control of the writer¦s pact or relationship with the reader regarding an established functional and personal tenor.

[1] When *I* think about stress, the *most significant* cause in relation to school is academic pressure. [2] In *my* junior year in high school, *I* found that this was the very type of stress *I* was having to cope with everyday. [3] *My main* concerns were grades. [4] *I* had not realized, at that time, that it was not the grades so much that were *important*, but the process of learning the material being taught.

[5] Once *I* learned that being able to retain knowledge of a particular subject was *pertinent*, *I was faced* with another stress: peer pressure. [6] It is *amazing* how much influence *your* peers have on *your* academic life. [7] It seems *everybody* has fun when *they* run with the crowd.

[8] *I* had the *hardest* time coping with stress related to academic pressure. [9] *Perhaps*, the problem was *my* inability to cope with failure. [10] As someone once said to *me*, in milder terms, 'Nobody gives a care about a looser.' [11] This statement has always stuck in *my* mind. [12] This, *I* know, is not the way to think. [13] However, when analyzing this statement, *I* find it is *basically* true. [14] The way I coped with this stress was applying *myself* by doing the *best* that *I* could *possibly* put forth.

[15] As for *peer* pressure, *I* had few problems in combating this stress once *I* established *my* priorities. [16] There is nothing wrong with doing what the crowd does, but *remember your* responsibilities. [17] It is *easiest*, though, to remember *my* mother's favorite biblical quote: To everything there is a season.

The strategiescs called on in locating the writer's functional and personal tenor, or orientation to the reader's role I have called ''identifying' strategies.

iv Identifying The Writer's Effort To Be Processible- Finding

Here we are concerned with the writer's use of a stock of common textual 'patterns' and how the reader can draw on an awareness of these patterns to''find' the specific information he or she is interested in. These patterns of organisation are schemas, or plans the writer uses or follows in constructing text. The configurations such patterns form can be identified at the paragraph level, or at the other extreme, the level of genre. A genre is an institutionalized textual pattern which assumes not only set patterns of interpropositional relations, but a particular functional and personal tenor, and incorporates certain assumptions about the conventions regulating the motive 'be clear', or 'be quick' which give it its separate generic identity.

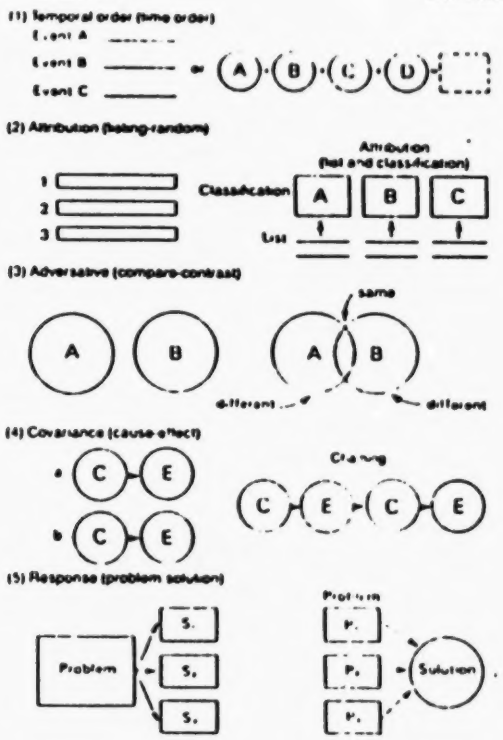
Let us deal with the commoner non-generic text-types first.

Text patterns:

A number of researchers all identify a common core of basic patterns. Horowitz makes the point, ' the patterns used to treat particular topics may also be unfamiliar and specialized'(1985:534)...' the writer is responsible for amking sure that the right pattern is triggered in the mind of the reader by the text.'(1985:534). This is what I have called a'recognition' activity (1987c) in my article 'Authenticating contexts....', as opposed to

the response actibity of 'following' cohesive chains.

The patterns identified are larger, paragraph scale versions of the propositional relations discussed earlier. Here are the basic paragraph relations schematized by Horowitz;



These can be integrated into larger generic form like the 'research report'. Here is a simple version of the basic plan or 'script'(Schank, Abelson 1977) underlying a prototype report, from Barnett (1984)

OUTLINE FOR A RESEARCH REPORT

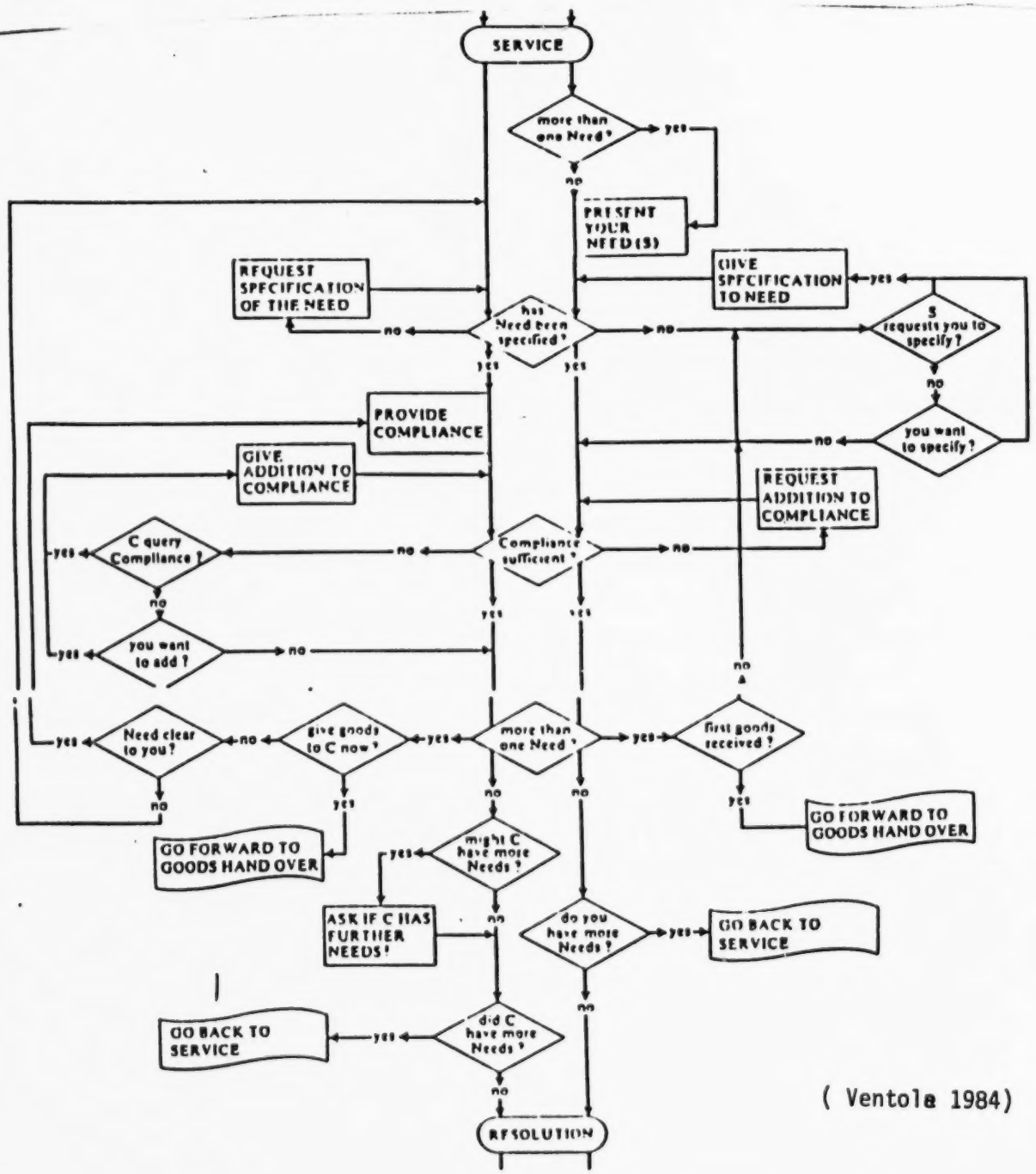
Introduction
- Rationale for the study
- Review of related literature
- Hypothesis

Methods Section
- Participants
- Materials
- Procedures

Results

Discussion
- Summary
- Interpretation and integration
- Implications

Here again, in the scriptal or schematic organisation of written text, there is a link with spoken language, since these macro-structures underly the organisation, or 'semiotic structure' of various forms of face to face encounter. These are just beginning to be studied. Here is Ventola's schema for the structure of service encounters;



(Ventola 1984)

To conclude this final section I wish to give some impression of the detail, as well as the breadth, of the research in this area of text processing.

Firstly, to return to the basic text patterns I have already introduced, let us look in more detail at the problem solution schema, and the classification schema, with respect to the work of Hoey (1984) and Winter (1977;1978), and also of Trimble (1985).

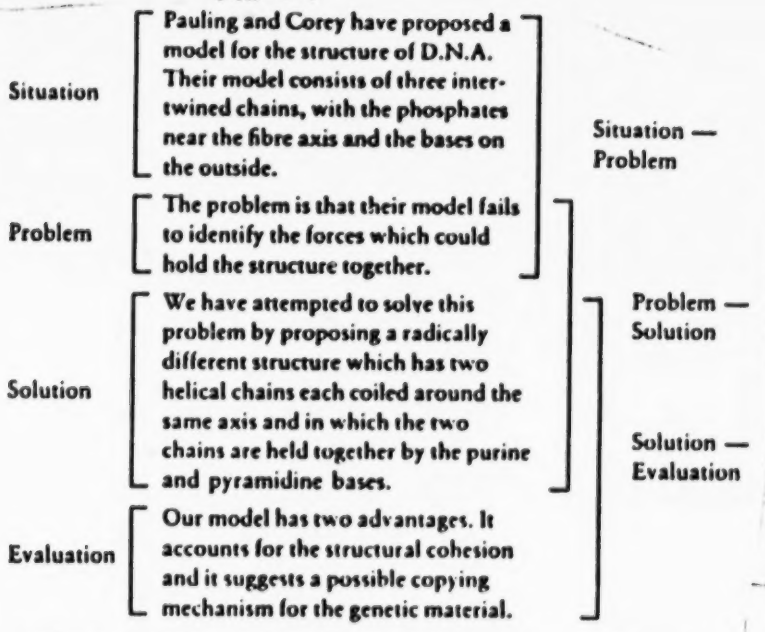
Problems and solutions

Winter has proposed that underlying all discourse is a variation on the basal pattern. situation, problem, solution, evaluation. His example of this pattern is;

I was on sentry duty (situation)
I saw the enemy approaching (problem)
I opened fire (solution)
The enemy dispersed (evaluation)

Each of these stagesis marked by what he calls 'vocabulary 3' items which organize, as it were,the grammar of the text. Some of the words are obvious, e.g. the occurrence of 'problem' willl signal the problem stage, and the occurrence of 'solution', will signal that stage. There are other lexical signalèers theugh which are useful to text processors attempting to 'find' specific stages in a text.

Here is a text with the macrostucture marked on. Consider the signalling function of the boxed words;


Situation
Pauling and Corey have proposed a model for the structure of D.N.A. Their model consists of three inter-twined chains, with the phosphates near the fibre axis and the bases on the outside.
Problem
The problem is that their model fails to identify the forces which could hold the structure together.
Solution
We have attempted to solve this problem by proposing a radically different structure which has two helical chains each coiled around the same axis and in which the two chains are held together by the purine and pyramidine bases.
Evaluation
Our model has two advantages. It accounts for the structural cohesion and it suggests a possible copying mechanism for the genetic material.
Situation — Problem
Problem — Solution
Solution — Evaluation

(Crombie 1985)

DISCOURSE MACRO-PATTERN: Situation — Problem — Solution — Evaluation

These stages can be missed out, so we can have solutions with no problems, or no evaluation etc. Which stages are present here and how do you know?

VIVITAR Zoom

VIVITAR have now made available their 80–200mm f/4 TX zoom lens, first announced at 'photokina'. The lens is offered from stock with the Minolta XG2 mount, and has an aperture range of f/4–f/22 and a minimum focusing distance from the film plane in normal mode of 1.9m (6.3ft). The lens is multicoated, has an accessory size of 55mm and features 'one touch' zoom and focus control.

(*Industrial and Commercial Photographer*, January 1979, p. 120

(Jordan 1984)

To turn to classffication, Trimble has distinguished a number of different types. Each of these has distinct rhetorical markers. These are;

Complete

Partial

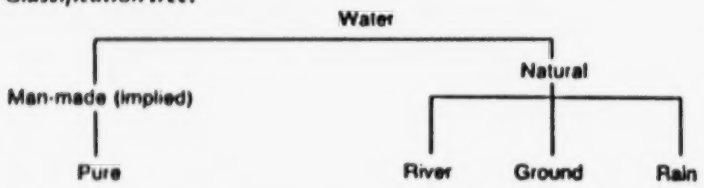
Implicit

Each of these can be complex or simple. To

conclude, here is an example of one of these types.

Paragraph 2: Complex implicit classification
A similar need for research exists in the branch of hydrology that deals with the quality of water. In nature, there is no water like the pure water defined by chemists, made up of only hydrogen and oxygen. River water, ground water, and even rain water always contain other dissolved or suspended elements, and these, even when present in small quantities, play an important role.
[Source: Batisse, in Ewer and Latorre, pp. 123–4.]

Classification tree:



(Trimble 1985)

(for further studies of rhetoric and the structure of scientific discourse see Widdowson 1979: Swales 1985.) The larger question here is, to what extent do different text types make differential use of these different forms of classification, problem solution structure etc., and how do we develop learner awareness of this. My proposal has involved a suggestion that we move from general strategies applied to a number of general texts so as to develop ability in the use of the strategies for finding, following, identifying and understanding, to applying these strategies in the contexts provided by more complex subject-specific texts.

It is to the way we can identify these strategies, and the way they draw on the resources I have just described for knowing how the writer can be quick, clear, expressive and processible, that I now turn. Note though that the view proposed here of the interactive, reciprocal nature of the reading-writing processes means, of course, that developing reading ability provides natural and inevitable contexts for the development of writing ability. I see these two activities as reverse sides of the same coin if you like, and the resources I have itemised here can be used as a framework for teaching the learner writer how to be quick, clear etc., as well as developing the learner reader's strategies for coping with written text.

Methods

7. How To Be A Dominant Reader : Methods

I must summarise here some implications of the preceding sections, and demonstrate how the rationale I have presented can be used as the basis of materials design. This exemplification, though brief, will, I hope be suggestive of the lines I think a reading course based on the principles I have described, should take.

I began by giving reasons for the use of 'authentic' contexts for the development of general reading strategies. Such authentic contexts are the focus of the final exercises in this section. What are the general reading strategies which are applied to these authentic contexts? They are of two types.

To be dominant, or assertive, in the way I described, a reader must first of all be able to identify texts on a topic he is interested in, aimed at an audience at his own level and commensurate with his own reading purpose. I have called these 'context' strategies, because they are less to do with dominating a specific text as they are to do with mastering the ability to find reading material suitable to the reader's larger purposive context. Some very simple exercises which merely touch on the preceding descriptions are presented in the following pages. I have also shown how vocabulary exercises could be approached along similar lines, in a way that illustrates the schematic representation of the links between vocabulary and reading-writing on page 17.

Once the reader has selected the right text from the larger context he must then begin to dominate it. This requires 'text' strategies, and these are based closely on the four part distinction made in the previous section. I have also suggested a likely sequence of application of such strategies.

The reader must first find the information in the larger text by using what he knows about the larger schematic organisation the writer uses as a template or pattern to make the whole text processible. This means locating the problem section, the evaluation section, or the introduction or argumentation etc. Then, once he has found the most useful section, the reader must follow the topic he is interested in through that section. The aim of such textual strategies is to relieve the reader of the dependent instinct to assimilate everything in the text; in a way these strategies help the reader to avoid reading.

Having located and followed the topic through that

section of the text which fits his reading purpose the reader must attempt to understand by drawing on an awareness of how the writer manipulates the resources he has at his disposal for being 'clear'. These concern the recognition of intra and inter-propositional relationships i.e. who did what to who or what, and whether successive propositions are in contrast or some sort of causal relationship. Finally the reader must draw on strategies for identifying the writer's orientation to himself as a reader, and to his subject. This involves drawing on an awareness of the way the writer manipulates the resources of the language so as to be expressive, in the way I have described.

I have given a few examples of this in the introductory exercises. However in the 'authentic' exercises the reader is assumed to have identified the texts in which he is interested, and the emphasis there is on applying strategies related to finding, following, understanding and identifying.

For example, finding is involved in the location of reference sources in a text, or relating text to diagrams; following is a strategy underlying the 'cohesion' exercises; understanding is drawn on in locating definitions and examples, while various exercises involve locating the points at which an author 'evaluates' information.

There are two further groups of strategies, and these relate more to the reciprocal nature of reading and writing than they do to specific reading requirements. I have maintained a view throughout that reading is a covert interaction with an imaginary interlocutor, as indeed writing is. To be dominant the reader must learn how to manipulate the interaction to his own advantage and purpose. This involves developing strategies for entering into active participation with the writer in constructing meaning. I have given examples of how the writer can be 'projected into dialogue' as an aid to comprehension. (see Robinson 1987a).

This leads to an obvious conclusion. To be a dominant, and therefore purposive and successful reader, the reader must be able to metamorphose, or recognise himself as an imaginary other via the written text. In this way the reader experiences what I call a 'doppelganger' effect; he sees himself reflected by the writer and encoded as an assumption within the text. This provides a natural context for the development of 'doppelganger' writing abilities, as I attempt to demonstrate in the final, brief exercises of this section, and in appendix 2.

Exercise 1. Text a)

Context Strategies - Finding The Right Text

The first thing the reader must do is identify the writers topic, purpose and intended audience.

ASK What is it about _____

What is it for _____

Who is it to _____

We can give the reader some guidance to begin with.

Topic	Purpose	Audience
football	to persuade	teachers
electricity	to amuse	football fans
a lens	to warn	students
science	to inform	engineers
stocks	to complain	nurses
nature	to advertise	general public
taxation	to advise	customers

This context sensitization is essential in the early stages of a reading course, so students become practised in identifying different possible topics, purposes and audiences. To be dominant readers though though they must actively seek out texts on topics they are interested in for their own purposes. We can begin with a range of general texts and develop these procedures before progressing to more specialized texts. Here is text a), answer the questions in relation to this.

VIVITAR Zoom

VIVITAR have now made available their 80–200mm f/4 TX zoom lens, first announced at 'photokina'. The lens is offered from stock with the Minolta XG2 mount, and has an aperture range of f/4–f/22 and a minimum focusing distance from the film plane in normal mode of 1.9m (6.3ft). The lens is multicoated, has an accessory size of 55mm and features 'one touch' zoom and focus control.

(*Industrial and Commercial Photographer*, January 1979, p. 120

One thing that can help you identify topic, purpose and audience is the vocabulary in a text. Look at these words. They are taken from texts which are not complete. Do they give you any clues about possible audience, topic and purpose? Make guesses and try to explain your choices to the teher.

a)

check position
a basis
Europe
trade with
total
fifty million

INTENDED READER

	a footballer
	an economics student
	a politician
	a physics student
	a shopkeeper

THE PURPOSE IS

	to persuade
	to advertise
	to give information
	to warn
	to amuse
	to complain

THE LETTER IS ABOUT

	the price of oil
	the World Cup
	making soup
	buying a car
	buying a company
	poetry
	a birthday

b)

inconvenient
incorrect
total
a kind of
problem
subtract
check

INTENDED READER

	a computer programmer
	a shopkeeper
	a teacher
	a bank manager
	a car dealer
	your grandmother

THE PURPOSE IS

	to persuade
	to amuse
	to warn
	to complain
	to teach
	to advertise
	to agree

THE LETTER IS ABOUT

	a wedding
	a bill
	your salary
	a new car
	Arabic history
	a meal

Now look at text b) and indentify the writer's intended context (intended reader, topic, purpose) by scanning the vocabulary.

text b)

Pauling and Corey have proposed a model for the structure of D.N.A. Their model consists of three intertwined chains, with the phosphates near the fibre axis and the bases on the outside.

The problem is that their model fails to identify the forces which could hold the structure together.

We have attempted to solve this problem by proposing a radically different structure which has two helical chains each coiled around the same axis and in which the two chains are held together by the purine and pyramidine bases.

Our model has two advantages. It accounts for the structural cohesion and it suggests a possible copying mechanism for the genetic material.

a)

automatic

top of

has been

piped

therefore

is capable of

over-sized chocolates

software

Topic _____

Audience _____

Purpose _____

b)

we addressed processes

backgrounds elongated

scene segmentation

images boundaries

rather patterns intensity

Topic _____

Audience _____

Purpose _____

Now look at the following text. Decide quickly which of the above groups of words belong to it. Were you right about the topic?

Text c)

AUTOMATIC CHOCOLATE DECORATION BY ROBOT VISION

A J CRONSHAW, PATSCENTRE INTERNATIONAL, CAMBRIDGE, ENGLAND

ABSTRACT

A prototype machine has been developed for the decoration of chocolates with piped patterns. The chocolates are decorated whilst on a conveyor belt by a robot arm equipped with a piping nozzle. The robot is guided by a machine vision system which enables the robot to adapt intelligently to the exact position and orientation of the chocolate. The nozzle is therefore directed to apply a piped pattern of chocolate mixture to the top of the chocolate with correct alignment.

The system is also capable of recognising mis-shapen chocolates such as doubles (two stuck together) or over-size or under-size chocolates.

The paper includes a description of the software techniques for visual recognition and guidance of the robot. The cost and performance of the system are also discussed.

1. INTRODUCTION

The decoration of chocolates - and in fact the handling of chocolates generally - is largely a manual operation in many confectionery companies. Operations such as chocolate decoration and chocolate packing are often very labour intensive. The continual quest for a higher quality product in the face of increasing labour costs and decreasing robot cost has spurred the development of automated inspection techniques.

Automation of these tasks needs to be flexible for all but the largest manufacturers : batch production is often involved, and product changes are often needed to meet changing market demands.

Patscentre International is actively involved in this field through the development of versatile robots equipped with sophisticated image processing systems. Patscentre's robot systems can be reprogrammed to meet :

- change-overs from batch to batch
- changing product lines

Furthermore the "intelligence" and adaptability of "seeing" robots means that these systems can be introduced into existing factories with minimum peripheral implications. It is not necessary to invest in feeders or magazining systems for example. A seeing robot can often work directly from existing conveyors and factory storage systems.

The very nature of confectionery products is also a good reason for this approach. Chocolates are fragile and easily scratched (and the lady does not like scratched chocolates!) A seeing robot eliminates the need to feed chocolates to the robot by mechanical feeders which can damage the product. Further problems can arise from natural centres such as nuts and cherries. This can lead to a variable size product which is difficult to handle except by an intelligent and adaptive system.

2. EXISTING MANUAL METHODS

Decoration can most conveniently be carried out at one of two stages in the manufacturing process. The first opportunity is whilst the chocolates are riding along the enrobing conveyors. Here the chocolates are well regimented in regular rows and columns.

Variations in position and orientation are however inevitable : as the chocolates change over from one belt to another slight disturbances can result. The exact position and orientation of the chocolates is not a repeatable absolute. To apply a decoration the only methods to date have been to apply non critical patterns such as stripes automatically, or if a piped decoration is required to employ manual methods.

The second opportunity to apply a decoration is when the chocolates have been transferred to factory storage trays. Here the chocolates are randomly arranged. Manual methods alone have been used to date.

3. ROBOT DECORATOR

The prototype Robot Decorator system is shown in Fig. 1. A T.V. camera is mounted overhead looking down vertically at chocolates on a conveyor. A Microcomputer (a DEC LSI-11) is used to analyse the visual data from the camera and to control the robot arm (fig. 2). The arm has two degrees of freedom in X and Y coordinate directions. The prototype system uses ambient lighting though obviously more robust methods would be used in a production system.

The system operates by scanning chocolates at one point on the belt and then a short distance downstream the chocolates are decorated. There is a certain amount of queueing of data to accommodate this gap. This scheme means that the decorating head never appears in the imaging area.

4. RECOGNITION SOFTWARE

The t.v. picture is digitised onto a 256 x 256 matrix of binary pixels and stored in the LSI-11. Feature extraction routines are applied to this data to extract key parameters about chocolate shapes. These include :

- Area
- Perimeter
- Centre of Area
- Radii signature
- Corner extraction

The radii signature is the result of measuring the distance from the centre of area to each of the points on the perimeter. The signatures for two of the chocolates digitised in Fig. 4 are shown in Fig. 5 and Fig. 6. Peaks in the radii signature correspond to corners and valleys to sides.

5. PROMINENCE

A corner extraction routine has been developed to handle the rounded "corners" that are typical of chocolate shapes. The feature has been named "prominence" to distinguish it from the usual sort of corner.

Prominence is defined as shown by the shaded area in Fig. 8. Mathematically it is the region enclosed by the smooth spiral joining R_A and R_B (both local minima) and the edge itself. Examples of this feature are shown in Fig. 7.

The result of extracting the prominence feature is to isolate the rounded corners of a given shape and to characterise it by the size and position of the corners. The size of the area is a key factor in gauging the extent of the corner. And the centre of area of the prominent area is a robust indication of where the corner is located. For chocolates with round corners this routine is a key technique to find the long axis (i.e. orientation) reliably despite the presence of variations in the perimeter shape.

6. REJECTION OF MIS-SHAPES

The prototype system has been configured to recognise three types of chocolate as shown in Fig. 2 and 3. The area of chocolates is used as a simple discriminator. Chocolates that exceed a maximum threshold are rejected by the system. Similarly chocolates that are too small are rejected and an error message is logged.

A more detailed study of the question of recognition of mis-shapes has been published in connection with automatic chocolate packing[1].

7. PERFORMANCE

The performance of the system is limited in the prototype by the speed of the decorating arm. The capacity of the microcomputer to recognise shapes has been found to be around 250mS/chocolate. The decorating arm is able to utilise only 17% of this capacity with a cycle time of around 1.5S. It is suggested that a production version machine would use a number of arms per scanning system.

The cycle time of the software has been optimised by writing the software in a medium-level programming language[2]. "EXTRA" offers the speed of program execution of assembly language together with the high-level features of a high-level language.

Exercise 2. Text b)

Text Strategies - How Not To Read Everything

To get what you need for your purpose from a text you must first find the section that will help you , then follow the topic you are interested in and understand the argument as well as identify the writer's attitude. Here are some exercises to practice these steps. Eventually you will learn how the writer helps you to find, follow understand and identify through the language he uses.

1. Finding: Underline two words that tell you the topic. _____
Where are they?_____

2. Following: How many times is 'their' model referred to in the text? Circle the references. _ _ _____ _ _ _

3. Understanding: What is the relationship between the first two sentences in the text. Circle the correct answer.
a) comparison
b) amplification
d) contrast
e) classification

4. Identifying: Which is the best model?_____

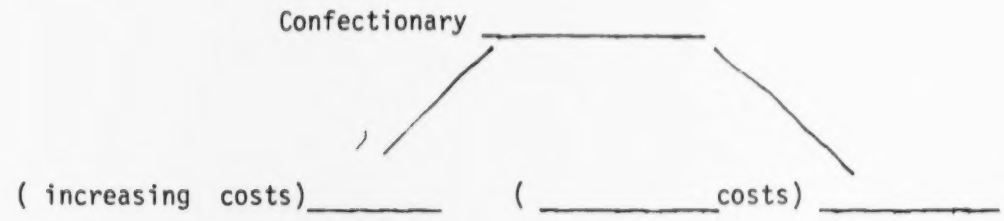
Why?_____

Note that the students would have received pre-teaching on the differences between the rhetorical relationships here.in question 3.

This is intended to be a general text.

Text Strategies Text c)

1. Finding Look at the first paragraph. Which word means the opposite of manual _____ .
Complete this diagram to show the organisation of the first paragraph.



2. Following Look at paragraph 4 in the introduction. What do 'these' systems refer to? _____

3. Understanding Look at the first paragraph again and your diagram of it. What will the article go on to discuss?

_____

Look at paragraph two and three, are they

a) comparison contrast
b) condition consequence
c) staement exemplification
d) staement denial

4. Identifying Look at paragraph 3. Which two words show the writer's attitude to Patscentre. Mark them in.

_____

Text c) is a more 'subjec t -specific' and so 'authentic' text than text b) or text a) , but we can apply the same strategies to it. (See section 3.)

Exercise 3. Text d)

Interaction Strategies - How To Negotiate With The Writer

The writer is trying to help you get the information you need from the text. There are several ways you can call on the writer to help you understand the text. Of course, learning how the writer helps you as a reader will also help you to become a good writer, so we will practice writing too. You can learn many things from reading, and how to write is an important lesson you will learn.

Talk to the Writer

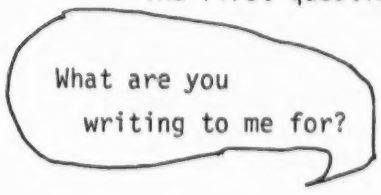
When the writer is working at her desk, she tries to think of questions you, the reader, might have, and then answer them.

Look at the text below. Read through it quickly to answer;

1. Who is the writer?-_____
2. What is her purpose? _____ ___ ___
3. Who is the intended reader? _ . _ _ __ _____

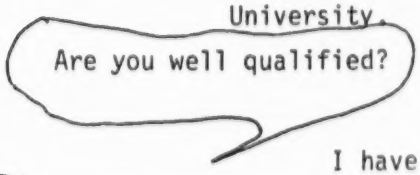
The first question the writer imagines the reader has is;

Reader's Question →

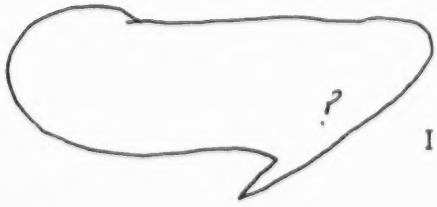


Writer's answer;

Please send me a catalog and an application for admission to the School of Engineering at Northwestern University.



I have a diploma from a high school in Beirut.

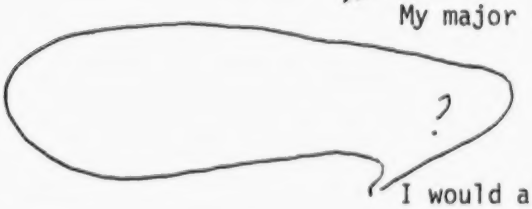


I arrived in the United States six months ago.

Now I am studying English at Loyola University.

I would like to begin my studies at Northwestern in September 1979.

My major field of interest is mechanical engineering.

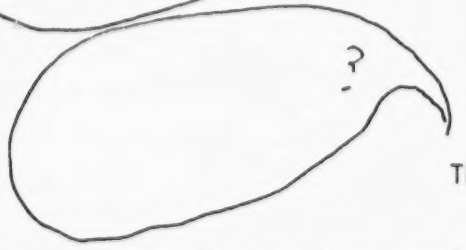


I would also like.....

Would it be possible for me.....

In addition I would.....

Would you please send.....



Thank you very much.

You see how easy it is to talk to the writer. Good writers are always easy to talk to, no matter how difficult the subject. Why? Because they try to to answer questions they think you will have.

text d)

Dear Madam/Sir:

Please send me a catalog and an application for admission to the School of Engineering at Northwestern University. I have a diploma from a high school in Beirut, Lebanon. I arrived in the United States six months ago. Now, I am studying English at Loyola University. I would like to begin my studies at Northwestern in September, 1979. My major field of interest is mechanical engineering.

I would also like to receive information on tuition and housing. Would it be possible to live with an American family? In addition, I would also like to know about any scholarships for foreign students.

Would you please send all of this information as soon as possible? Please send it to the above address. Thank you very much.

Text e)

Now read this text and ask the reader's questions. Write them below. Don't worry about grammar or spelling.

1. _____
2. _____
3. _____
4$ _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Discuss your answers with your teacher, and in groups.

Try to answer these questions too;

a) How do you know the writer isn't your friend, or a relative?

b) How would you change the letter if you knew the reader very well?

Text e)

Dear Ms. Lima:

I would like to request an interview for the position of typist. I saw your advertisement in Sunday's *Chicago Tribune*. I can type at 80 words per minute. I can take shorthand at 120 words per minute. I have a diploma from a secretarial school in Germany. I worked for five years as a typist in the Admissions Office at the University of Heidelberg. I arrived in the United States eight months ago. Now, I am studying English at Loop College. My English is good and my secretarial skills are excellent.

I would like to work for Lexington Steel Corporation. I would be happy to give you a list of references and a complete resumé of my work experience.

Please contact me at the above address. Thank you very much.

Exercise 4

Becoming A Writer - The Doppelganger Effect

Think about PURPOSE?

If you were writing to a Bank Manager what questions do you think he would want to ask as a reader? Choose them from this box.

What are you writing to me for? How many words do you need?
How old are you? How good is your English?
How much can you afford to pay? Can you drive?
Do you know what our rates of interest are? Can you drive?
Are you married? Do you want a deposit or a current account?
Would you like a picture to accompany the advertisemant?
Can you send me your references? When do you want this information?
Do you want to withdraw money at short notice?

THINK!

What would your PURPOSE be? So what QUESTIONS are RELEVANT to it?

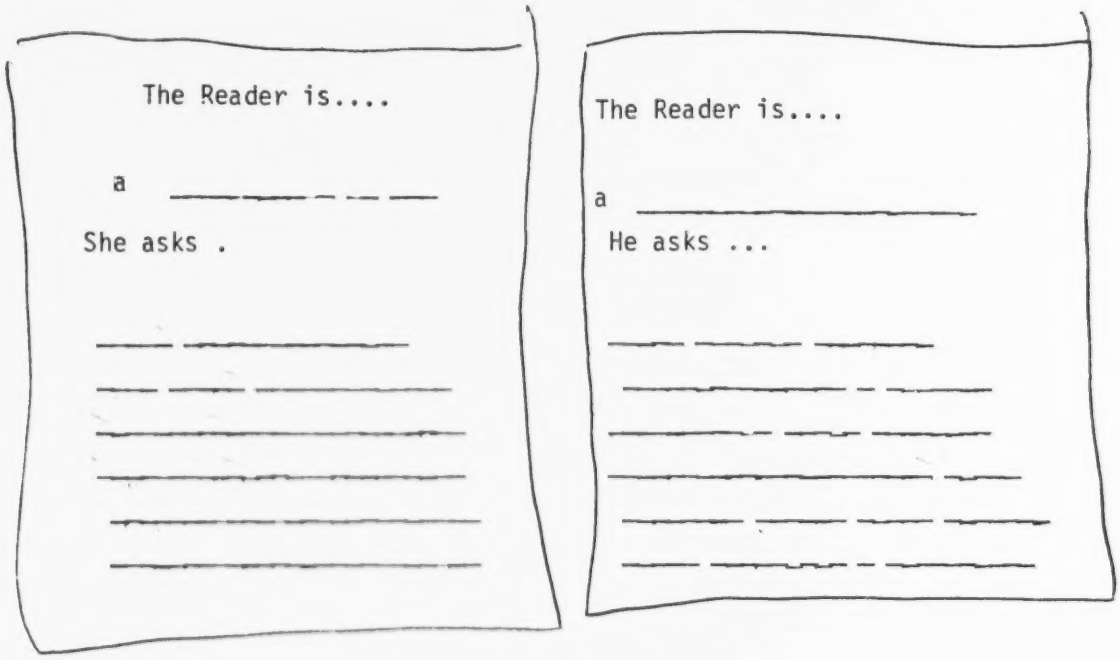
Some of the questions may not be useful at all, and some may be used more than once. Add any other questions you think are appropriate and put them in thi s bow, in order, below.

The Reader is....
a Bank Manager

He asks...

_____ _____
_____ _____
_ _____ _____
_____
_____ __
_____

Who might the other questions belong to? Put them in order and add to them if you can.



(see Appendix b. for further exemplification of this technique).

Now choose one of the readers and try to answer their questions by writing a letter. Do it below. See if your friend can guess which questions your latter answers, and what your PURPOSE is.

Techniques

8. Coping With Texts: Some Techniques Based On The Text Strategy Approach

The exercises which follow on authentic texts cab be accomodated within the framework I have erected.

Engineering
- Text A. a) Identifying and understanding strategy
  - b) Finding strategy
  - c) Understanding strategy
- Text B. a) Following strategy
  - b) Following strategy
  - c) Finding and understanding strategy
  - d) Finding and understanding strategy

Business
- Text C. a) Identifying and understanding strategy
  - b) Finding strategy
  - c) Finding strategy
  - d) Understanding strategy
- Text D. a) Finding strategy
  - b) Identifying and understanding strategy
  - c) Finding and understanding strategy
  - d) Understanding strategy

My aim here is to show how the four broad strategies of finding, following , understanding and identifying can be developed via a variety of exercise types, or techniques for developing awareness of the code resources. Clearly a technique like asking students to guess words from context can be used in relation to any of these four strategy areas. Guessing a word like 'therefore' would draw on understanding strategies for processing inter-propositional relations (6.1); a word like 'these' would draw on strategies for processing cohesion (6.2) etc.

Text A. a) this requires awareness of personal and functional tenor, which is formal and non-didactic, and of interpropositional relations. In most cases the definition is given as a statement which can the be followed by an exemplification, or term exemplification, or possibly an antonymic or synonymic paraphrase(relations r, t and w on pages 25-26). Knowing how to mark or underline only the definition or statement, and not the extra information given in bonding, paraphrase and amplification relations, is important for economy in revision, and draws on an ability to understand the writer's effort to be clear. (This is also true of Business text C.a) and

text D.b).)

Text A. b) this involves a knowledge of the macrostructure of the text, specifically where in the text the repeated information the diagrams contain can be found. Will it be far away, or close to the diagram? What text signallers ('see fig 3' etc) will be used to help the reader locate the repeatediinformation? The reader must know this to find his or her way around the text successfully. (See also Business text C.b).)

Text A. c) is fairly obviously an understanding strategy, aimed at making the writer's meaning more clear to the reader.(See also Business text C.d),)

Text B. a) and b) both draw on reader awareness of the resources the language has for creating cohesion and so enabling the writer to be quick. In a) the signallers are the determiners 'the' 'these' etc. In b) the aim is to draw attention to the potentially available synonyms that writer's can draw on in creating chains of identity (see pages30-31).

Business text D.c)involvesknowing the propositional values, and interpropositional relations of , for example, statement-exemplification. This is involved in decisions about how much to underline, as has already been suggested. The exemplification is not essential. In identifying the classification the reader is drawing on a knowledge of how the initial proposition, that managers are classified according to e.g. responsibilities, is 'amplified'(relation u page 26) to cover 'functional' and 'general'. The diagrammatic note-taking is an activity aimed at providing learners with a strategy for finding information quickly for revision purposes. These exercises are much the same as those in Engineering text B c) and d).

The exercises that follow are thus means to an end. The end is developing learner awareness of the resources the language has for encoding the writer's motive be clear, quick etc. However, they ignore the important question of purpose in reading. A dominant reader draws on a knowledge of the writer's manipulation of code, in order to acheive a purpose. The purpose can be simulated by announcing that a short quiz will be held on the texts after the exercises, thus demonstrating how learners could go about studying texts like this for actual subject-specific quizzes.

The longer text 'Bootstrap Stereo' assumes that the learner is bringing a purposive task to the text. The questions are infixed to guide the reader in purposive scanning.

COPING WITH TEXTS.

Engineering.

TEXT A. DISTILLATION AND SURFACE TENSION.

Skills covered.
a) Underlining (Definitions).
b) Completing Diagrams From ^ Text.
c) Using The Dictionary In Context.

TEXT B. AROMATIC HYDROCARBONS.

skills covered.
a) Cohesion (Identifying Referents).
b) Finding Contextual Synonyms.
c) Diagramming Ideas: Classification.
d) Diagramming Ideas: Partition.

Coping With Texts. (A) DISTILLATION AND SURFACE TENSION.

a) Underlining: Discussion.

Look at this extract from a textbook. You can see that some sections have been underlined. Why has the reader underlined these parts and not others? Are there any other ways of marking or underlining parts of a text?(Yorkey p.155 will give you ideas).

Properties of Pure Substances

Just as each individual has his or her own appearance and personality, each pure substance has its own properties, distinguishing it from other substances. The properties of pure substances are divided into physical and chemical properties.

Physical properties are those properties that can be observed without changing the composition of the substance. These properties include color, odor, taste, solubility, density, specific heat, melting point, and boiling point. Physical properties of a pure substance are analogous to a person's appearance – the color of his hair and eyes, his height, and his weight (see Figure 3-5).

Chemical properties are those properties that can be observed only when a substance undergoes a change in composition. These properties include the fact that iron rusts, that coal or gasoline burns in air, that water undergoes electrolysis, and that chlorine reacts violently with sodium. Chemical properties of a pure substance are analogous to a person's personality, or his outlook on life, or his temperament, or how he reacts in various situations (see Figure 3-5).

Work Problems 5 and 6.

Table 3-3 lists some physical and chemical properties of water and iron.

(from W.S.Seese et al,(1981). Basic Chemistry. N.Y.:Prentice Hall. p.52.)

Task.

Now look at the next passage, below, and underline the definitions of the following: i) distillation ii) surface tension iii) distillate iv) meniscus v) residue vi) fractional distillation.

Distillation

Distillation is a process used in the purification of *liquids*, involving heating a liquid to its boiling point and then cooling the vapors in a condenser to form the purified liquid. A simple distillation apparatus is shown in Figure 12-6.

A common application of distillation is to separate water from dissolved salts and other nonvolatile impurities. Colorless vapors appear in the distilling flask above the impure water and are condensed to give clear colorless droplets of water called the *distillate*. The impurities remain in the distilling flask and are called the *residue*. Distilled water is prepared in this manner, with the salts being composed of calcium, magnesium, or iron with hydrogen carbonate (bicarbonate), carbonate, or sulfate.

Fractional distillation, which is in essence many of these distillations, is used in the petroleum industry to refine gasoline. Gasoline is a mixture of hydrocarbons (see Chapter 9, Footnote 5).

12-6

Surface Tension

Surface tension is the property of a liquid that tends to draw the surface molecules into the body of the liquid and hence to reduce the surface to a minimum. For example, mercury, because of its high surface tension, forms droplets on a glass surface, whereas water, whose surface tension is

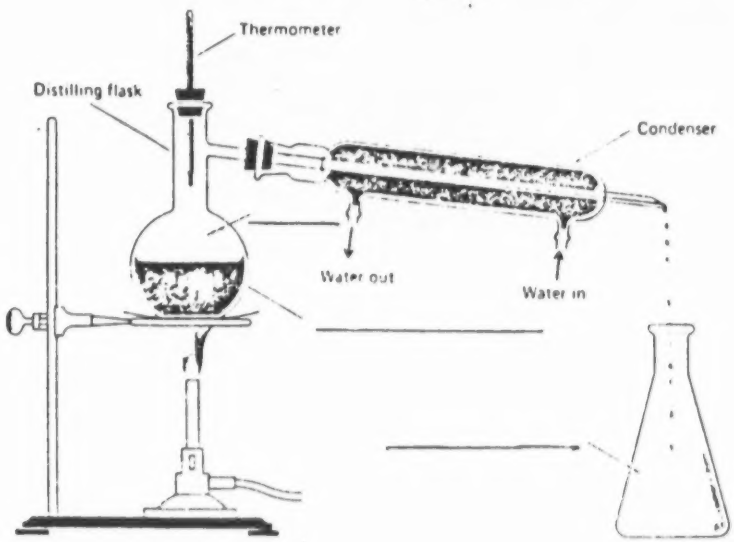


FIGURE 12-6
Distillation of water.

appreciably lower than that of mercury, tends to spread out on the surface. This property of a liquid can be explained by intermolecular attractive forces (forces between molecules). Any molecule in the body of a liquid is surrounded on all sides by molecules and is attracted equally in all directions by neighboring molecules. But, a molecule at the *surface* of the liquid is attracted by other molecules *beneath* it and *not* above it. This results in an unbalanced force downward, tending to draw the surface molecules *into the body of the liquid* and to reduce the surface to a minimum (see Figure 12-7).

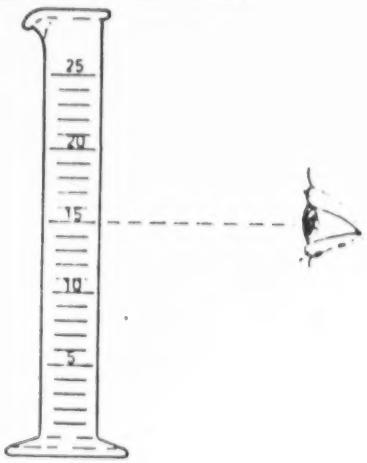
Some substances have greater surface tension than others because the attractive forces in these substances are greater (mercury vs water). Alcohol is often used to prepare an area for medical treatment because it has a low surface tension and can easily penetrate into a wound to cleanse the area. One of the reasons for the cleansing action of soap solution is that it lowers the surface tension of the water and hence allows the solution to

FIGURE 12-7

Surface tension can be explained by _____ _____ _____, with the • representing the intermolecular attractive forces

FIGURE 12-8

Reading the _____ water in a _____ _____. Read at the bottom of the _____. The volume of water in this cylinder is 15 mℓ



penetrate into the creases in your hands to clean out the grease that holds the dirt there.

As the temperature increases, the average kinetic energy of the molecules increases, and this increase in energy tends to overcome the intermolecular attractive forces; hence, the surface tension decreases. As you are aware, you can wash your hands more efficiently in hot water than in cold, due in part to decreased surface tension in the hot water.

In reading the volume of a liquid in a graduated cylinder or by other means for measuring volumes, you are instructed to read at the bottom of the *meniscus*, that is, the bottom of the curved surface of the liquid. For water the surface curves upward along the walls of the cylinder (see Figure 12-8). The surface tension of the liquid is one of the factors that cause this kind of behavior in liquids.

b) Completing Diagrams From A Text.

Now look at the three figures (12-6, 12-7, 12-8). In 12-6 some words have been left off the diagram. Try to complete them with information from the text. In 12-7 and 12-8 some words have been left out of the explanation accompanying the diagrams. Try to fill in these words as well by taking information from the text.

c) Using The Dictionary In Context.

The word hold in the text above has more than one

entry number in the dictionary. List the correct entry number for the way it is used here and give an example of this use of the word from the dictionary. ' held '

entry number example.

_____ . _____ .

On the other hand, 'attractive', 'solution' and 'body' have only one entry number in the dictionary. Give another example, using your dictionary, of the way these words are used in the text above.

i) attractive _____ .

ii) solution _____ .

iii) body _____ .

Coping With Texts. (B) AROMATIC HYDROCARBONS.

a) Cohesion: Identifying Referents.

Read the passage below. Some words have been missed out. They are all repeated at other places in the text or in the accompanying diagrams. Can you find them and fill them in? One of the sub-headings has been deleted. What do you think this will be? Why?

Aromatic Hydrocarbons

The _____ _____ are hydrocarbons that include _____ and compounds containing aliphatic or aromatic groups attached to aromatic rings (arenes). Because benzene (C_6H_6) is the simplest aromatic hydrocarbon, we will consider it in some detail.

_____

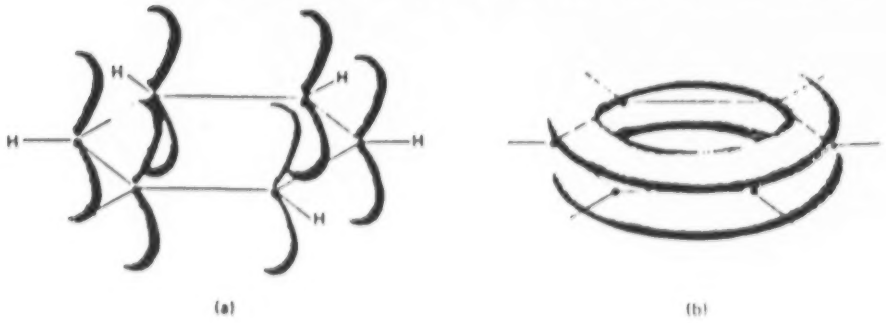
The benzene molecule is planar and has the shape of a regular hexagon. Benzene is a cyclic molecule and consists of six carbon atoms, each using sp^2 hybrid orbitals to form σ bonds with hydrogen and two adjacent

carbon atoms as shown in Figure 18-8a. The remaining six nonhybridized *p*-orbitals, one on each carbon, all lie perpendicular to the plane of the carbon ring. These _____ overlap with those _____ to form a delocalized cloud of electrons above and below the plane of the ring. The bonding between adjacent carbon atoms is neither double nor single but something in between. ***All*** of the ***carbons*** in benzene are equivalent as are ***all*** of the ***hydrogens.*** The delocalized _____ in _____ are depicted in Figure 18-8b as being located in a pair of doughnut shaped regions lying above and below the plane of the ring. This delocalizing of electrons appears to increase the stability of benzene and make it more stable than a hypothetical molecule that consists of fixed bonds, three double bonds and three single bonds alternating around the ring. _____ of _____ are shown in Figure 18-9.

The structural formula for benzene can be represented in a number of ways. One way is to draw it as containing alternating double and single

FIGURE 18-8

The overlap of *p* orbital electrons in benzene (C_6H_6). (a) Six *p* orbitals, one on each of the six carbon atoms. (b) three delocalized π bonds above and below the plane of carbon atoms



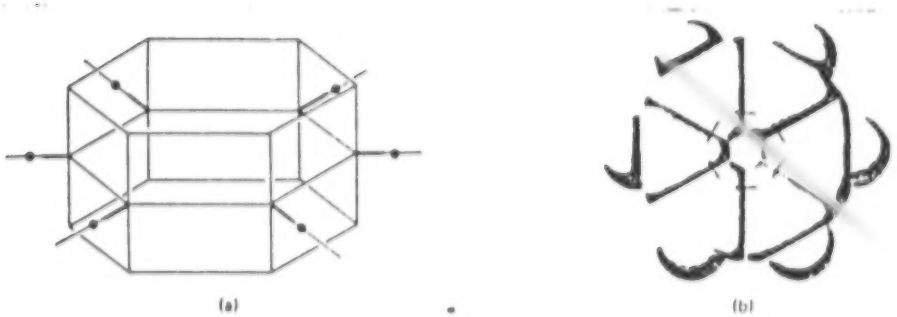
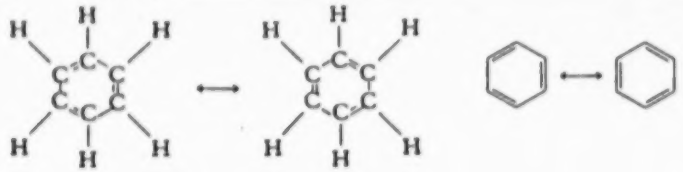


FIGURE 18-9

Molecular models of benzene (C_6H_6). (a) Prentice-Hall model. (b) Stuart-Briegleb model

bonds, but keeping in mind that the π-electron cloud is delocalized over all six carbon atoms. Two such _____ can be written, each differing from the other in the positions of the double bonds. These are *Kekulé* structures, named for Friederich August Kekulé who first proposed them in 1858. The Kekulé structural formulas are more conveniently drawn as a simple hexagon containing alternating double bonds, each corner representing a carbon atom bonded to a hydrogen. The actual benzene molecule is thought to be a hybrid of the two and this is indicated by writing a two headed arrow between them:



i. _____

More recently the Kekulé formulas have been replaced by a formula which depicts the delocalization of the π electrons by using a circle in the center of the hexagon:

ii. _____

Can you think of titles for the last two diagrams given above?(i + ii).

b) Finding Contextual Synonyms.

The words in boxes can all be replaced by more common words - can you guess what they are? Use your dictionary to check only after you have guessed.

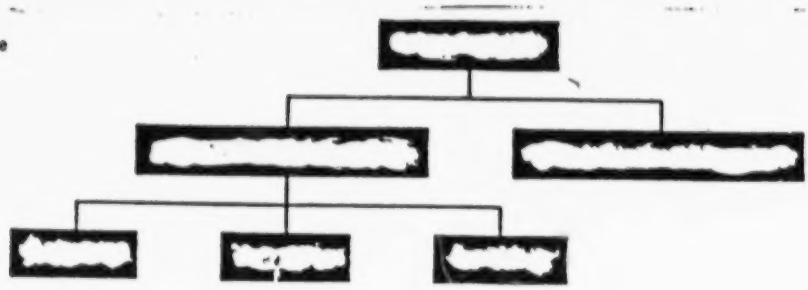
c) Diagramming Ideas; Classification.

You have practised using and drawing diagrams to show classification in Elanton. As you know classification occurs regularly in scientific writing. Read the short text below and complete the diagram.

Classification of the Hydrocarbons

The hydrocarbons are organic compounds consisting of only the elements carbon and hydrogen. Hydrocarbons are divided into two groups based on structure: the aliphatic hydrocarbons and the aromatic hydrocarbons. The aliphatic hydrocarbons are further divided into three general groups: the alkanes, the alkenes, and the alkynes. In sections 18-3 to 18-5, we will consider the aliphatic hydrocarbons, in section 18-6 we will consider the aromatic hydrocarbons. Figure 18-3 summarizes the classification of the hydrocarbons.

FIGURE 18-3
Classification of the hydrocarbons



Now try to draw your own small diagram to show this classification. Draw it in the margin, next to the text,(where the box has been drawn). Drawing small diagrams like this in the margins of textbooks can help you revise quickly.

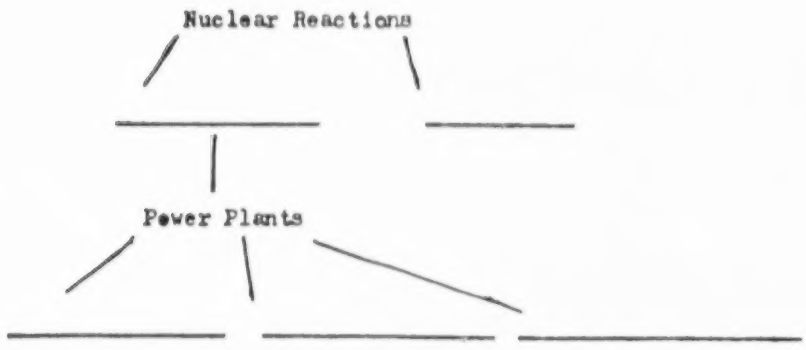
d) Diagramming Ideas: Partition.

Read the short text below and complete the diagram to show partition. Draw it in the margin as well.

Peaceful Uses of Nuclear Reactions

The two types of nuclear reactions (fission and fusion) may be used to produce power in nuclear reactors. Nuclear fission technology is well developed, and nuclear reactors producing electrical power have been in continuous operation in the United States since 1957.

The first sustained nuclear fission reaction was carried out by the director of the Italian research group, Enrico Fermi, on December 2, 1942, in the squash courts below the Alonzo Stagg Field at the University of Chicago. The energy produced in this reaction was in the form of heat energy and was quite small, being discharged to the surrounding air. Since then, considerable development has occurred in nuclear fission power plants. The plant consists of three essential parts: (1) nuclear fission reactor; (2) turbine and generator; and (3) condenser, as shown in Figure 20-6.



COPING WITH TEXTS.

Business.

TEXT C. CORPORATIONS.

Skills covered.
a) Underlining (Definitions).
b) Relating Diagrams to Text.
c) Notetaking From A Text - Using A Diagram To Condense Ideas.
d) Using The Dictionary.

TEXT D. MANAGEMENT AS PEOPLE.

Skills covered.
a) Relating Texts To Diagrams.
b) Underlining (Definitions).
c) Identifying Classification And Illustrating With A Diagram.
d) Guessing Words From Context.

Coping With Texts. (C). CORPORATIONS.

a) Underlining: Discussion.

Look at this extract from a textbook. You can see that some sections have been underlined. Why has the reader underlined these parts and not others? Are there any other ways of marking or underlining parts of a text?(Yorkey p.155 will give you ideas.)

The Professional Manager

Once an entrepreneur's business is established, growth can be rapid. The task is to produce the product in quantity and market it to consumers effectively. To do this, the firm must add employees. And if it is successful, it quickly becomes too large for casual working relationships and unstructured organization. What it needs is a professional manager to organize employees into specific units, set up rules and procedures, and make operations more efficient.

This manager is not necessarily the original entrepreneur, who may or may not be suited to this type of work. Entrepreneurs usually like to be on their own, whether manufacturing an improved moped or opening a new Chinese restaurant. Ordinarily their concerns are with ideas and with overseeing their implementation.

Managers, on the other hand, usually assume the more concrete tasks of organizing people and other resources and solving specific types of problems. For instance, they may work with a company task force to design a new kind of breakfast cereal, or they may figure out a better way to move Alaskan oil from the West Coast to the Midwest. The activities of planning, organizing, leading, and controlling that are used by all professional managers will be discussed in detail in Part II of the text.

The Functional Specialist

Businesses hire millions of people who are neither entrepreneurs nor managers. Ranging from clerks to nuclear physicists, these employees are called functional specialists. Usually they are trained in a specialized field of business, such as accounting, finance, marketing, or production. One of their primary duties is to advise management in their areas of expertise. Functional specialists may combine this expertise with some managerial skills and supervise a department of other functional specialists. Today, Levi's jeans, for example, are sold throughout the world because the skills of professional managers and functional specialists extended those of the original entrepreneurs (see box).

(from W. Rudelius et al,(1981). Introduction To Contemporary Business, Harcourt,Brace,Jovanovich. pp.11-12.)

Task.

Now look at the next passage,below,and underline the definitions of the following: i) a corporation.

ii) a privately held corporation.

iii) a puolicly held corperation.

iv) a closely held corporation.

v) consolidation.

vi) mergers.

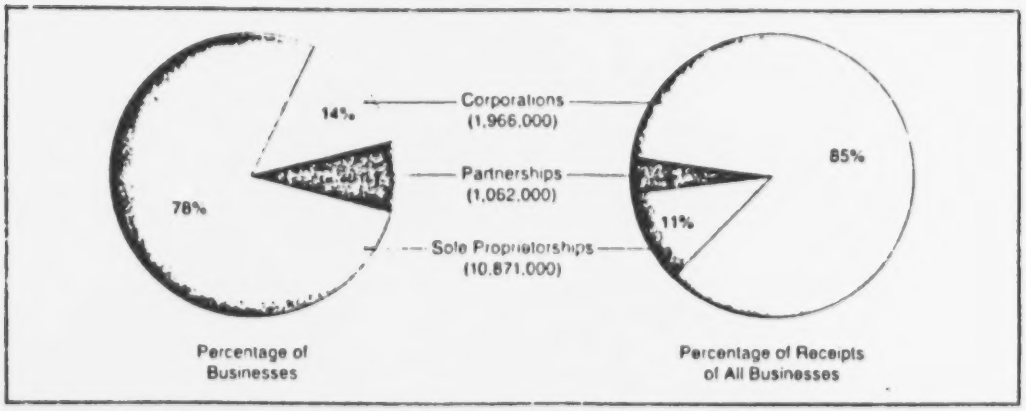
vii) amalgamation.

Try to underline only the words needed for a definition - no others.

Corporations

A **corporation** is the most influential form of business ownership, yet it is a difficult thing to describe. The nearest definition is that it is an association of persons that by law has authority to act and be financially liable apart from its individual owners.

The corporation has three key characteristics: many owners (from one up to several million stockholders); written rules (with many legal details); and **limited liability** (no one owner can normally lose more money than he or she puts in, even if the corporation goes bankrupt).



Source: Statistical Abstract of U.S.

FIGURE 3-2 U.S. Business Ownership.

Although corporations represent only [ ] percent of U.S. enterprises, they earn [ ] percent of all business income (see Figure 3-2). And they pack more clout every year.

Types of Corporations

Whether a proft-making corporation manufactures computers or sells crayons, it must be one of the following three types.

- A PUBLICLY HELD CORPORATION These are owned by members of the public who have bought shares in the company. These **stockholders, or shareholders,** can buy and sell their shares conveniently on some stock exchange. The corporation must comply with many government regulations.
- A PRIVATELY HELD CORPORATION These corporations do not regularly offer their stock to the public, so owners cannot buy and sell it conveniently. However, such businesses are subject to fewer government regulations than publicly held corporations; they can make long-range plans without having to worry about stockholder concerns over stock price or dividends; and they often are free to operate outside the public eye. For example, you probably have never heard of a grain and shipping company called Cargill, Incorporated. Yet its 1980 sales were more than $13 billion (see box on the opposite page).
- A CLOSELY HELD CORPORATION A large proportion of the stock in these is usually owned by one or a few families. Often these companies are also privately held corporations, with stock ownership not available to the general public. For example, for many years the Ford Motor Company, one of the largest publicly held corporations in the United States, was controlled by the Ford family because of the volume of Ford stock it owned.

Corporations usually seek to grow. A few begin as sole proprietorships or partnerships and become corporations to handle their increased business. Some corporations grow internally by generating enough profit themselves to introduce new products and enter new markets. But they can also grow by **consolidation,** combining two or more corporations into one. Technically, there are two kinds of consolidations—a *merger* and an *amalgamation*. A **merger** (or **acquisition**) occurs when one corporation buys out one or more others; the purchasing corporation remains dominant and retains its original name. For example, when Campbell Soup Company merged with Pepperidge Farm (see box), the new firm retained the name Campbell Soup Company. An **amalgamation** occurs when two or more corporations unite to form a new one with a new name. The name General Motors, for instance, was established in 1917 when the Buick, Cadillac, Oldsmobile, and Pontiac Corporations were combined. In practice, however, the terms merger and acquisition often are used interchangeably today to mean amalgamation. About 2,000 to 4,000 corporate mergers and amalgamations occur in this country in a typical year.

b) Completing A Text From A Diagram.

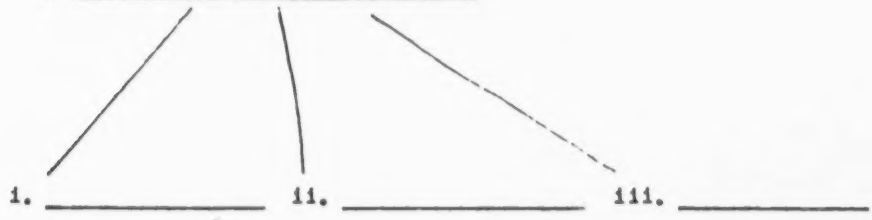
Now look at the two pie charts (p. 2). What is the source of the information in these pie charts? _____ .

Look at the three lines below the pie charts. Two pieces of information have been left out of these lines. Can you complete the text with information from the diagram?

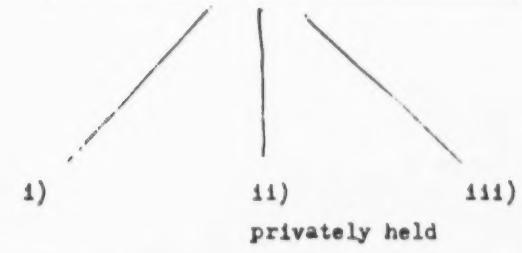
c) Condensing Information Using A Diagram.

Diagrams are a quick way of showing the main ideas in a text. You might want to draw small diagrams in the margin of your textbook to help you revise quickly. Complete these diagrams after reading the text again.

1) Characteristics of Corporations.



2) _____ .



d) Using The Dictionary In Context.

Both [key] and [hold] have more than one entry number in the dictionary. List the correct entry number for the way each word is used in the text and give an example of this use of the word from the dictionary.

'key'

entry number _____. example. _____ .

'hold'

entry number _____. example. _____ .

On the other hand [comply] and [seek] only have one entry number each. Look at the entries. Can you think of another, more general, word or words to take the place of each of these?(You may need to find a word to replace comply with and not just comply.) If the dictionary entry doesn't help you just guess - can any other words you know fit in that context?

. _____ .

Coping With Texts. (D). MANAGEMENT AS PEOPLE.

a) Completing A Diagram From A Text.

As you know, the information in a diagram is usually repeated in the text. Complete figure 4-2 below with information from the text.

Management as People

In the example of the rock band above, management is *you*. For the corner newsstand, management is probably the owner, who is also the personnel and, in a sense, the whole organization. But in large businesses (which are the primary focus of this book) there are many managers with many different types of responsibilities. In these organizations managers can be classified in two ways: (1) by their level—top, middle, first-line—and (2) by their responsibilities—functional and general.

Management Levels

Top management, at the top of the pyramid in Figure 4–2, is responsible for overseeing the whole organizational structure. These few managers establish broad, long-range objectives and set policies for the organization. Typically, their titles are chief executive officer, president, executive vice president, and group vice president. Among their duties are meeting with government and consumer groups, deciding on which new products or services to introduce, acquiring or selling subsidiary companies, and hiring key high-level personnel. For a profile of chief executive officers, see Figure 4–3 and the accompanying box.

Middle management, the next level of managers shown in the pyramid in Figure 4–2, is responsible for specific operations. The duties of these man-

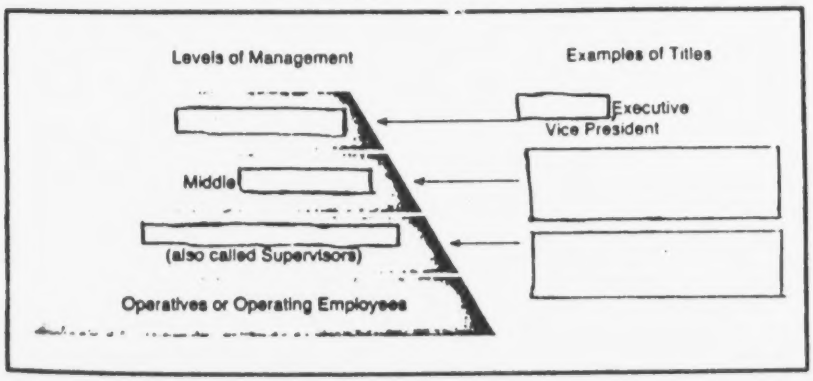


FIGURE 4-2
Levels of Management.

agers—usually called by such titles as director of finance and budgeting, national sales manager, or division head—include things like long- and short-range planning, establishing specific goals, overseeing lower-level managers, and organizing and implementing procedures to carry out the broad objectives set by top management.

First-line or first-level management is the lowest level in an organization that involves directing the efforts of others. First-line managers direct operatives or operating employees only, not the work of other managers. Typical titles of first-line managers might be shop supervisor, office manager, district sales manager, or personnel director. Their duties include short-range planning, hiring and training employees in their own area of supervision, and solving immediate problems.

Completing A Text From A Diagram.

Now can you complete the three missing words in the third paragraph below by looking at the diagram? You might need to use your dictionary to check the meaning, but do this after you have guessed!

Functional and General Managers

Whatever their level in the organization, managers can also be classified as *functional* or *general* managers, depending on the type of activities they manage. A **functional manager** oversees the activities of a single department or part of a firm, such as manufacturing or marketing or accounting or finance. A **general manager** is responsible for an entire unit, such as an operating division of a company, a whole company, a government agency, or a college. He or she is responsible for all the activities of that organization, such as manufacturing, marketing, accounting, and finance.

A small company like a local sporting goods store probably has one general manager—its president. But a large company has several. General Mills, for example, hires a general manager for each division. That manager is in charge of all operations necessary to produce and sell either grocery products or games or apparel. General managers in charge of such large-scale operations ordinarily are vice presidents of the company.

Both types of managers need three kinds of skills: (1)_____*skills*, the ability to use the tools, procedures, and techniques of a specialized field; (2) _____*skills*, the ability to understand, work with, and motivate others; and (3)_____*skills*, the mental ability to see the organization as a whole and integrate its interests and activities.

Each level of management uses a different combination of these skills, as can be seen in Figure 4–4. First-line managers need[ ]technical skills than

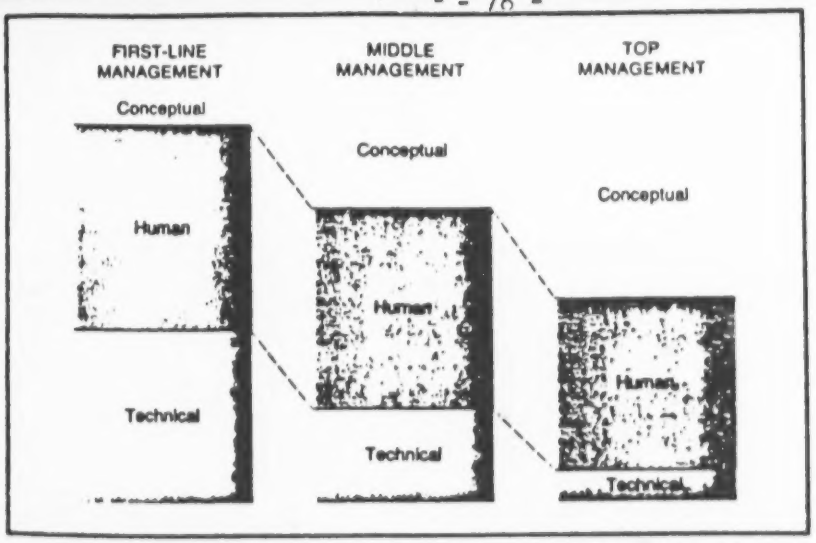


FIGURE 4-4 ***Mix of Skills Needed at Three Levels of Management.***

Source: Based on Robert L. Katz, "Skills of an Effective Administrator," *Harvard Business Review* (Sept.–Oct. 1974), pp. 90–102.

do top managers. For example, a foreman in a machine shop of Zenith TV needs to know the capability of lathes and drill presses in his department so he can help his operators with their machining problems. He also probably needs more human skills than any other level of managers because he spends so much time working directly with his subordinates.

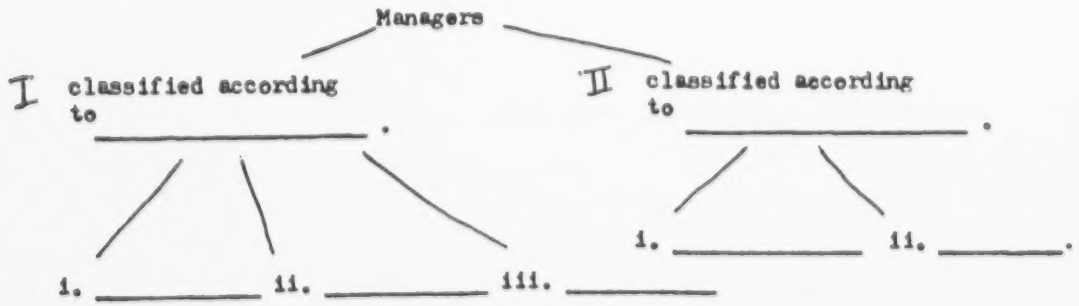
But the higher the level of management, the [ ] important conceptual skills become. At Zenith, for instance, top- and middle-level managers must be able to spot trends in consumer demand and technology to determine what products to manufacture.

b) Finding Definitions And Underlining Them.

You should now be able to find the definitions of three types of skill. Underline them in the text. Underline the definitions of two types of manager.

c) Classification: Illustrating With A Diagram.

Now look at the first paragraph of 'Management As People' again and complete this diagram to show how managers are classified.



d) Guessing From Context: More or Less.

In the last two paragraphs a word has been missed out - it is either 'more' or 'less'. Use the diagram and the text to help you guess which it is in each case and then fill it in.

But What About Purpose?- Give Them A Quiz, Reading To Learn And Learning To Read

A conclusion to each of the preceding text-based exercises would be to give a quiz, based on the texts, which recycles information covered during the completion of the exercises. For example, asking the student to give the characteristics of corporations, or explain how managers can be classified, or define distillation etc.

This sort of activity, if it is based closely on the strategy exercises completed in class can give students confidence in their ability to cope with what appear at first to be 'difficult' texts without reading everything closely. What we want students to be able to do is locate salient and relevant information quickly, and to understand it in order to complete their task or purpose. Often this purpose is to extract information for a quiz at a later date, and so the activity seems worthwhile, and consequently the time spent on the reading strategies is validated for the learner. Reading to learn is also learning to read.

In the following exercise, however, the learner is presumed to be bringing a purpose to the text and the questions are infixed to guide him or her in their decisions about whether to persevere with the text or not. This is a transferal of the context strategies in exercise 1 (pages 46-50) to an 'authentic ' context. This is followed by a fully developed set of text strategy exercises for what I have called finding and following.

9. Organising The Exercises: A Final Text With Units On 'Finding' And 'Following' - Coping With 'Bootstrap Stereo'.

The aim of the exercises which follow the text is to enable readers to extract as much information as they can from the text, without reading it all. I have only exemplified the finding and following strategies in any detail.

In the preceding exercises the techniques for extracting information ffom the text were not grouped under the strategy headings I have suggested. This time they are.

In the preceding exercises the purpose or task to be completed was introduced after the exercises had been completed. This time we can introduce the purpose prospectively. The learner's task is to summarise an article for seminar discussion. The article must deal with recent research that has potential 'military' application.

It is with this question in mind that the reader scans the article which follows.

Once he or she has decided whether it is useful, they will then turn to the text exercises. Hopefully they will see it can be useful to their task. They have then to extract as much relevant information as they can without reading, labo riously thrpugh the whole text. The text exercises, then, help them develop dominant reading strategies by shortcutting their way through to the necessary information, in ways that can be applied to other texts, at other times, for different purposes.

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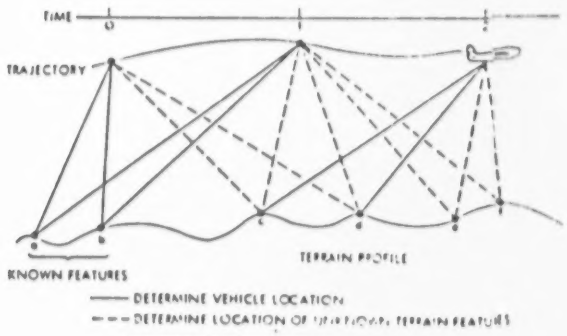
ABSTRACT

Lockheed has been working on techniques for navigation of an autonomous aerial vehicle using passively sensed images. One technique which shows promise is bootstrap stereo, in which the vehicle's position is determined from the perceived locations of known ground control points, then two known vehicle camera positions are used to locate corresponding image points on the ground, creating new control points. This paper describes the components of bootstrap stereo.

I INTRODUCTION

Before the advent of sophisticated navigation aids such as radio beacons, barnstorming pilots relied primarily on visual navigation. A pilot would look out the window of his airplane, see landmarks below him, and know where he was. He would watch the ground passing beneath him and estimate how fast and in what direction he was moving.

Today, there exist applications for which a computer implementation of this simple, visually oriented form of navigation would be useful. One scenario hypothesizes a small, unmanned vehicle which must fly accurately from its launch point to its target under possibly hostile circumstances.



TIME	POSITION OF CRAFT DERIVED FROM	DETERMINE POSITION OF
0	a, b	-
1	a, b	c, d
2	c, d	e, f

Figure 1 Navigation Using Bootstrap Stereo.

Our overall approach to the problem involves providing the vehicle with a Navigation Expert having approximately the sophistication of an early barnstorming pilot. This expert will navigate partly by its simple instruments (altimeter, airspeed indicator, and attitude gyros), but mostly by what it sees of the terrain below it. This paper covers one aspect of the Navigation Expert, a technique which we call bootstrap stereo.

II THE BOOTSTRAP STEREO CONCEPT

Given a set of ground control points with known real-world positions, and given the locations of the projections of these points onto the image plane, it is possible to determine the position and orientation of the camera which collected the image. Conversely, given the positions and orientations of two cameras and the locations of corresponding point-pairs in the two image planes, the real-world locations of the viewed ground points can be determined [1]. Combining these two techniques iteratively produces the basis for bootstrap stereo.

Figure 1 shows an Autonomous Aerial Vehicle (AAV) which has obtained images at three points in its trajectory. The bootstrap stereo process begins with a set of landmark points, simplified here to two points a and b, whose real-world coordinates are known. From these, the camera position and orientation are determined for the image frame taken at Time 0. Standard image-matching correlation techniques [2] are then used to locate these same points in the second, overlapping frame taken at Time 1. This permits the second camera position and orientation to be determined.

Because the aircraft will soon be out of sight of the known landmarks, new landmark points must be established whenever possible. For this purpose, "interesting points" -- points with a high likelihood of being matched [3] -- are selected in the first image and matched inthe second image. Successfully matched points have their real-world locations calculated from the camera position and orientation data, then join the landmarks list. In Figure 1, landmarks c and d are located in this manner at Time 1; these new points are later used to position the aircraft at Time 2. Similarly, at Time 2, new landmarks e and f join the list; old landmarks a and b, which are

Is it the right text? _____ 38 Is it too difficult? _____

Look at the headings. Look at the diagrams.

:nger in the field of view, are dropped from .andmarks list.

Once initialized from a set of known land-s, bootstrap stereo has four components -- ra calibration, new landmark selection, point :ning, and control point positioning. Because ra calibration and control point positioning been well covered in the photogrammetric and ging literatures (e.g., [1], [4], [5], [6]), ill discuss only landmark selection and point :hing in the following sections.

III NEW LANDMARK SELECTION

Because the aircraft rapidly moves beyond the wn landmarks, new landmark points must constant-be established. For this purpose, "interesting nts" -- points with a high likelihood of being :ched [3] -- are selected in the old image of :h pair, then matched with their corresponding nts in the new image and located on the terrain.

Matching is done on the basis of the normal-ed cross-correlation between small windows of :a (typically 11 × 11) around the two points in estion. Matching has trouble in areas that con-:in little information or whose only information sults from a strong linear edge, therefore such reas make poor candidate landmarks.

To avoid mismatches from attempting to use :ch areas, various measures on the information in ne window have been used, including the simple tatistical variance of the image intensities over ne window [2] and the minimum of the directed ariances over the window [3]. We have combined nese into another interest measure which we call dged variance, which appears to perform better han either of its components [7].

We have defined our interesting points to be those which are local peaks in our interest measure, with a lower bound established to reject undesirable areas. Figure 2 includes some examples of the application of this interest measure.

IV POINT MATCHING

The actual matching of points in an image pair is done by maximizing normalized cross-correlation over small windows surrounding the points. Given an approximation to the displacement which describes the match, a simple spiraling grid search is a fairly efficient way to refine the precise match [2]. To provide that initial approximation, we have employed a form of reduction matching [3].

We first create a hierarchy of N-ary reduction images. Each $N \times N$ square of pixels in an image is averaged to form a single pixel at the next level. This reduction process is repeated at each level, stopping when the image becomes approximately the size of the correlation windows being used. Matching then begins at the smallest images, with the center point of the first image being matched via a spiral search. Thereafter, each matched point spawns four points around itself, offset by half a window radius along the diagonals of the window. These are mapped down to the next level of images, carrying their parent's displacement (suitably magnified) as their suggested match approximation. These matches are refined by a spiraling search before spawning new points. This process continues until the largest images are reached, effectively setting up a grid of matched points.

In our implementation of bootstrap stereo, reduction matching is used to determine approximate registration of the images and to initialize the second-order match prediction polynomials. Matching of old landmarks and of interesting points to create new landmarks uses these polynomials to predict an approximate match, which is then refined by a local search. Autocorrelation thresholding is used to test the reliability of the match, then points are located more closely than the image grid permits by parabolic interpolation of the X- and Y-slices of the correlation values.

V AN EXAMPLE

In Figure 2, we present an example of the control-point handling portion of bootstrap stereo. The original data set, a sequence of 3 images from a video tape taken over the Night Vision Laboratory terrain model, is shown in Figure 2a.

Figure 2b shows the interesting points in the first image, indicated by + overlays. If these were the control points from a landmark processor, we would use them to locate the first camera. These landmark points are next matched with their corresponding points in the second image; Figure 2c shows the successful matches overlaid on the first and second images. From the image plane positions of these points, the position and orientation of the second camera are determined.

Next, the areas of the second image which were not covered by matches are blocked out and interesting points are found in the uncovered areas, as seen in Figure 2d. The old landmark points and the interesting points are then matched in the third image, as shown in Figure 2e. The old control points from the second image are used to calibrate the third camera; the camera calibrations are then used to locate the matched interesting points on the ground, forming new control points. These two steps are then repeated for subsequent pairs of images in longer sequences.

VI CONCLUSIONS

When an autonomous aerial vehicle must navigate without using external signals or radiating energy, a visual navigator is an enticing possibility. We have proposed a Navigation Expert capable of emulating the behavior of an early barnstorming pilot in using terrain imagery. One tool

Is this page Useful?_____Why?_____Why not?_____ _____

such a Navigation Expert could use is bootstrap stereo. This is a technique by which the vehicle's position is determined from the perceived positions of known landmarks, then uses two known camera positions to locate real-world points which serve as new landmarks.

The components of bootstrap stereo are well established in the photogrammetry and image processing literature. We have combined these, with improvement, into a workable system. We are working on an error simulation, to determine how the errors propagate and accumulate.

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What else has she written?_____ _____ _ _ _ _ Will that be useful?_____

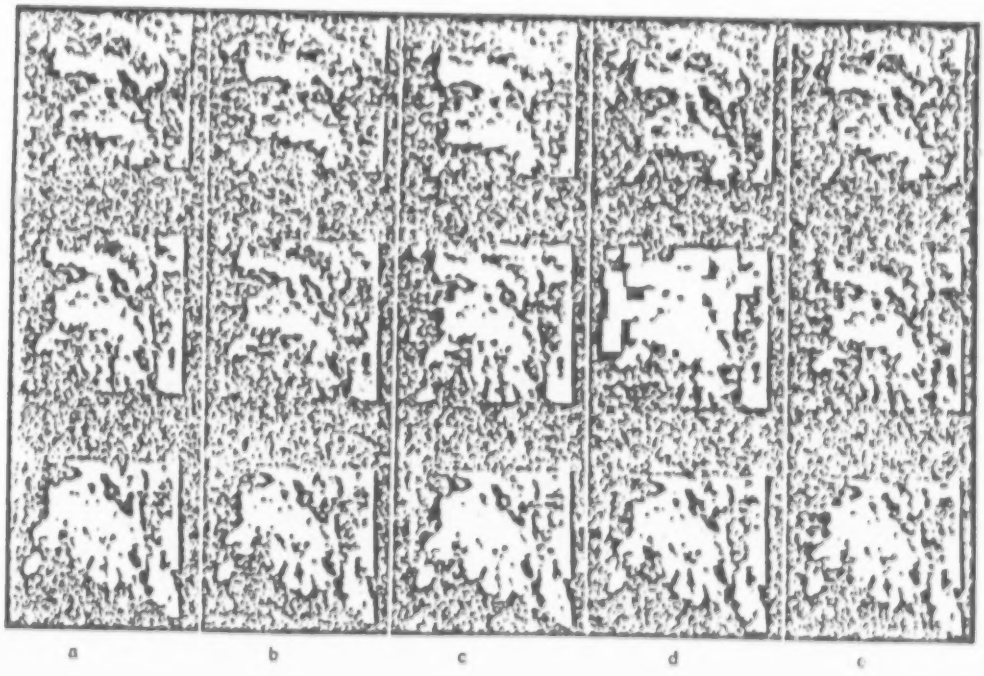

Figure 2 An Example of the Control-Point Handling for Bootstrap Stereo

a) The original sequence of 3 images.
b) The interesting points in Image 1.
c) The matched points between Images 1 and 2.
d) The areas of Image 2 covered by matches, with interesting points found in the uncovered areas.
e) The control points in Image 2 matched to Image 3.

40

Has this text helped you?_____ _ _ Why?_____Why not?_____

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Finding Strategies

Coping With Bootstrap Stereo

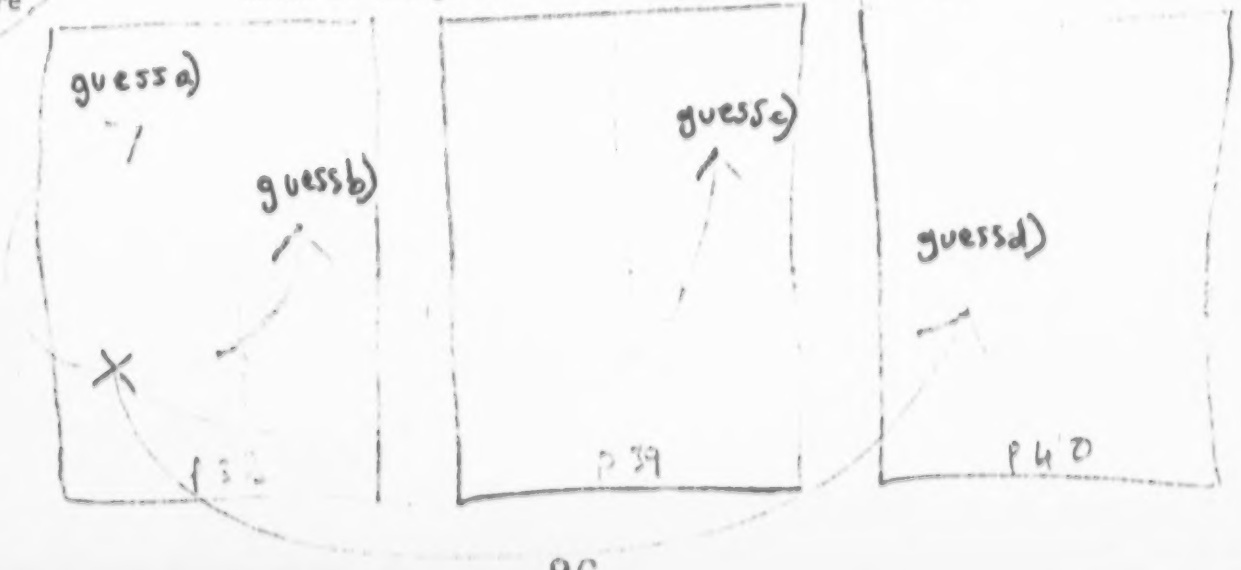
Text-Mapping

Sketch the text

Ex.1. Look at this text-map. Where will you find out quickly what the text will be about? Shade the area in. Now look at the text again and mark on the map the section headings and subheadings with a line -------. Mark on the diagrams with a cross X.

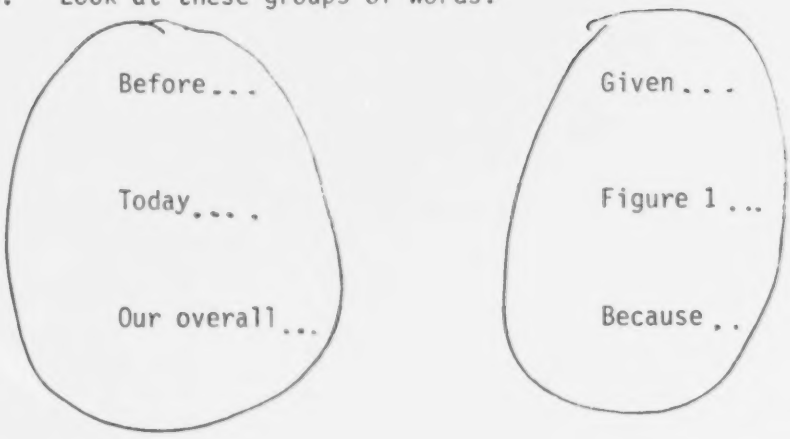
Guess about structure

Ex.2. Look at the first diagram. Where will it be discussed. Guess. Which of the guesses below do you agree with? Why?



...and guess about content

Ex.3. Look at these groups of words.



Which group will give a general explanation, and which will give a more detailed explanation?
Check your guess by looking at the text.

Ex.4. Read this sentence. It is the first sentence in the article.

Lockheed has been working on techniques for navigation of an autonomous aerial vehicle using passively sensed images.....

The passage will go on to —

a) Describe what Lockheed is
b) Contrast aerial vehicles and land vehicles.
c) Describe a technique
d) Describe what Lockheed will do in future

Now check your guess.

Scan for content

Ex.5. Lets check the guess you made in exercise 2, about where the diagram would be discussed, by scanning for the words in the diagram.

These words are repeated in diagram 1.

determine position
location time

Underline topic words

Underline them in the piece of text you think might discuss diagram 1. Underline the title, 'Bootstrap stereo' too and any reference to 'figure 1'.

Read topic clusters

Do the words cluster together anywhere? This should be the place where the diagram will be discussed in detail.

Match text and diagram

Ex.6. Look at the second paragraph in section 2. Two words from

i) the first sentence are repeated in the diagram. What are they?

_____ _____

ii) Now add information from the text to the diagram. Where are the 'images' referred to in the same sentence? Mark them on the diagram.

iii) Find the letters a, and b, in this paragraph. How are they referred to in the diagram?

_____ _____

How are they referred to in this paragraph?

_____ _____

iv) Look for Time 0, in this paragraph. What does the text say happens then? _____ _____
How is this shown in the diagram? Draw it below, as it is drawn in the diagram.

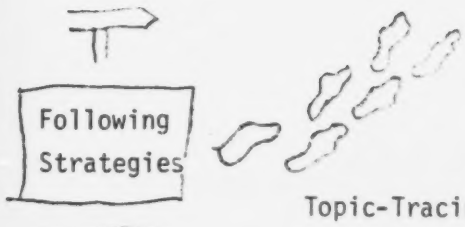
v) What happens at Time 1 ? Match the text and diagram. Draw it below.

What is a 'frame'? Mark it on the diagram.

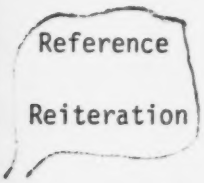
What does 'overlapping'mean ? Mark it on the diagram.

Remember these finding strategies:

- Sketch
- Guess about structure and content
- Scan
- Underline
- Read clusters
- Match text and diagram



Topic-Tracing



Ex.1. You are interested in the diagram called figure 2. Where are most of the references to figure 2 made? Under which heading? _____ .
Circle them with pencil.
Are they in any particular order? Use no more than five words

from the sentences containing the reference to summarise the meaning.

Figure 2 _____ .

Figure 2a _____ .

Figure 2b _____ .

Figure 2c _____ .

Figure 2d _____ .

Figure 2e _____ .

Abbreviation

Ex.2. What does (AAV) (second paragraph, section 2) refer to? _____

What are "interesting points" (third paragraph, section 2)? _____

and why are " " marks used? _____

What does this symbol [2] refer you to?

Verb chains

Ex. 3. Look at the second and third paragraphs in section 2 again. Circle this chain of references in the text.

_____ begins with _____

_____ are determined

_____ are then used to _____

this permits _____

_____ must be established

_____ are selected

_____ have locations calculated then _____ .

Now use as few words as necessary to complete the summary.

Words like 'these', 'this', 'their', 'the' are used to refer to other words that have the same identity, or meaning. We can link them in chains.

Identity chains

Ex. 4. Look at section V, 'An Example".

a) What does 'these' (paragraph 2, line 3) refer to?

_____

b) What does 'them' (paragraph 2, line 4) refer to?

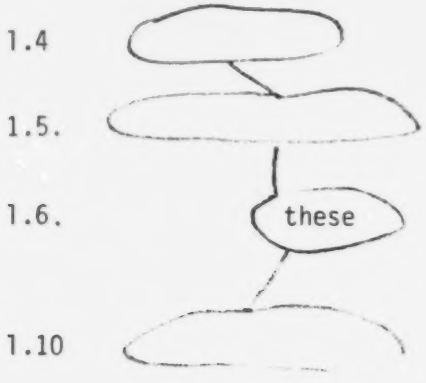
_____

c) What does 'their' (paragraph2, line6) refer to?

_____

Now draw this deictic chain on the text.

Now look at section 2, paragraph 2 and complete this chain. Draw it on the text as well.



Problems and solutions

Ex.5. Look at paragraph 3, section 1. What does 'the problem' in the first line refer to? _____

In the same paragraph, what is the name of the 'solution' to this problem? _____

Now go back to your text-map , the first exercise, and mark on these four stages in the text.
Situation
Problem
Solution
Evaluation

Use brackets to mark them in the text itself. Like this →

} Problem

Topic expansion

Ex.6. Look at the third paragraph, section 2 again. Read the first sentence. What is the topic,(which words are repeated?)

_____

Where will this topic be expanded? Look at the whole text.

_____.

Read the second sentence. Where will this topic be expanded?

_____.

Remember to use these following strategies:

Look for repeated words and phrases
Check abbreviations and punctuation
Follow verb and identity chains, and try to summarise
Look for problem and solution words
Look ahead to see if topics are expanded

Summary, References And Appendices

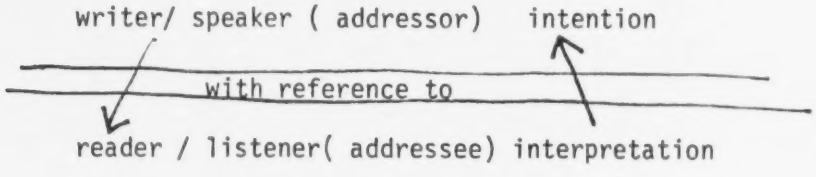
Summary: Meaning, Role, Motive And Purpose

Meaning And Text

1. Meaning does not pre exist the reader's act of interpretation, it is constructed via the act of interpretation. Meaning does not reside in the text.

Reader's Role

2. The reader and listener, as addressees, interpret with reference to what they assume are the writer, speaker addressors' intentions. For most purposes this involves the assumption that the writer speaker is cooperating in the communication.



i.e. the writer intends with reference to how he thinks the message will be interpreted, and the reader interprets with reference to what he assumes were the writer's intentions.

Motive And Encoding

3. The reader interprets the writer's intention via an assumed to be shared knowledge of the resources the language has for encoding the motives, 'be quick', 'clear', 'expressive', 'processible'. The writer too attempts to convey intention via these shared resources that the language has. Intention is the sum of the evidence the reader has of the reasons underlying the writer's deployment of these various resources.

Purpose And Dominance

4. An assertive reader brings his own purpose to the reading context and seeks to dominate the writer by interpreting with reference to the terms and conditions of this purpose. The dominant reader reconstructs only that aspect of the writer's overall intention which satisfies his purpose.

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Appendix

The following is a taxonomy of reading strategies from Ellen Block's article in TESOL Quarterly 20, 3 (1986) entitled; ' The Comprehension Strategies of Second Language Readers".

I have given it here , without critical discussion, simply as a point of comparison with my own approach to categorising and describing reading strategies.

The essential difference between us is this. My own description has been code-oriented, while Block's is cognition-oriented. I am acknowledging therefore the narrow scope of my own approach. I hope though that by narrowing the scope in this way I have described a framwork which is capable of useful application as a heuristic for those who wish to write reading material exercises. Block's taxonomy, it seems to me, is less useful in this respect.

General strategies include comprehension-gathering and comprehension-monitoring strategies. Each strategy type listed below is followed by one or more examples in quotations.

1. Anticipate content: The reader predicts what content will occur in succeeding portions of text. This strategy can occur in either mode but occurred more frequently in the extensive mode. "I guess the story will be about how you go about talking to babies."
2. Recognize text structure: The reader distinguishes between main points and supporting details or discusses the purpose of information. Responses occurred in the extensive mode. "This is an example of what baby talk is."
3. Integrate information: The reader connects new information with previously stated content. Responses occurred in the extensive mode. "Oh, this connects with the sentence just before."
4. Question information in the text: The reader questions the significance or veracity of content. Responses were in the extensive mode. "Why is [baby talk among adults] usually limited to lovers?"
5. Interpret the text: The reader makes an inference, draws a conclusion, or forms a hypothesis about the content. Responses, though more frequent in the extensive mode, did occur in the reflexive mode. "I think that's why some people doing this thing."
6. Use general knowledge and associations: The readers in this study used their knowledge and experience (a) to explain, extend, and clarify content; (b) to evaluate the veracity of content; and (c) to react to content. Responses were frequently in the reflexive mode: "When they talk to a baby, they just sing little songs which brought to mind again my little nephew because when he hears sounds he just open his eyes and he looks and he'll try to clap and sing with them." However, some readers used information from their own lives to clarify or extend ideas in the passages, and these responses were considered to be in the extensive mode. "That's true. It's not easy to hold baby's attention."
7. Comment on behavior or process: The reader describes strategy use, indicates awareness of the components of the process, or expresses a sense of accomplishment or frustration. Because readers' responses reflect self-awareness, this strategy was not classified by mode. "I'm getting this feeling I always get when I read like I lost a word."
8. Monitor comprehension: The reader assesses his or her degree of understanding of the text. This strategy occurred in the extensive mode. "Now I see what it means." "It doesn't seem like what I'm thinking of."
9. Correct behavior: The reader notices that an assumption, interpretation, or paraphrase is incorrect and changes that statement. This is a combination of the strategies of integration and monitoring, since the reader must both connect new information with old and evaluate understanding. This strategy occurred in the extensive mode. "Now I read this part I understand . . . I misunderstood in a way."
10. React to the text: The reader reacts emotionally to information in the text. Responses occurred in the reflexive mode. "I love little babies."

Local strategies deal with attempts to understand specific linguistic units. All occurred in the extensive mode.

11. Paraphrase: The reader rephrases content using different words, but with the same sense. This strategy was used to aid understanding, to consolidate ideas, or to introduce a reaction. Paraphrases were classified as reasonably accurate (P+) or inaccurate (P−).
12. Reread: The reader rereads a portion of the text either aloud or silently. The use of this strategy usually indicated a lack of understanding; however, rereading may also have given the reader time to reflect on the content.
13. Question meaning of a clause or sentence: The reader does not understand the meaning of a portion of the text. "What's this sentence mean?"
14. Question meaning of a word: The reader does not understand a particular word. "I don't understand this word."
15. Solve vocabulary problem: The reader uses context, a synonym, or some other word-solving behavior to understand a particular word. "Straight-forward grammar, means easy grammar."

Appendix 2

This article repeats some of the points made in the main text regarding 'interaction' strategies and the 'doppelganger' effect.

I have given it here in the hope that it makes those points a little clearer.

Projection into dialogue as composition strategy

Peter Robinson

This article outlines one way through which learners can be helped to develop awareness of their own decision-making processes in composition. This, it is argued, will provide them with a strategic resource for clarifying and redrafting written work which, at the task stage, may lack coherence, and may thus fail to communicate intentions. The strategy described may be used both in original composition and in revision or 'recomposition'. An example is given which involves the comparison of two business letters.

Introduction: purpose, audience and composition

Many communication-orientated approaches to developing writing skills have concentrated on the need to provide contexts in which writing is used 'realistically' to complete a task. This can involve simulations, as in Littlejohn and Hicks (1986), which provide a *purpose* and create an *audience* for the learner, thereby 'authenticating' the writing produced. All writing with a 'communicative function' is after all written *for* something and *to* somebody.[1]

In this article, however, I wish to concentrate on another aspect of the composing process, the problem of how to fashion the writing so as to achieve the writer's goal. But the problem of how to fashion the piece of writing cannot be viewed independently of the writer's awareness of what he or she is writing for or whom he or she is writing to.

I will be arguing that the learner's awareness of how to 'decide on particular steps in composing' (Larson 1976:71) is directly related to the way the writer 'builds and uses a reasonable model of the reader/audience' (de Beaugrande and Dressler 1981:213). Of course, writers always 'model' their readers with reference to their own intentions in writing.

I am suggesting, then that we make decisions about *how* to proceed in composition as a result of an imagined dialogue with the reader we are writing *to*, and our modelling of this reader is in turn dependent on what we are writing *for*, our purpose. At the Gulf Polytechnic, Bahrain, we have found that exercises involving the use of writing models and a technique called 'projection into dialogue' can be of help in developing learners' awareness of how to compose.

Background: imitating and using a model

Many writing courses involve the use of materials like those in Blanton, (1979) in which model texts are presented as guides to a subsequent activity. Within each unit of Blanton (which I have drawn on for examples later in this article) two different texts, which correspond to the basic model, are presented. One problem we have found with the use of such models is that some students tend to imitate large chunks of the model,

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rather than using the organizational framework or 'schema' that it provides[2] as a guide in their own composing. Consequently whole sentences are copied from the model, and this disrupts the coherence of the students' own work. The exercise suggested below is a response to this problem. It exploits the differences between the textual models, while making clear to the learner (it is hoped) the similarities in overall pattern.

The differences between the models are shown to result from the fact that in each case the writer has imagined his or her reader asking a different set of questions, and therefore has provided different sets of written 'replies'. To reconstruct this aspect of the original composing process, we make use of the 'projection into dialogue' technique. I will explain the assumptions about the nature of writing on which this is based, and then show how it can be used to develop awareness of the steps involved in composing business letters, using two model texts from Blanton (1979).

Projection into dialogue

Text 1

Dear Madam/Sir:

Please send me a catalog and an application for admission to the School of Engineering at Northwestern University. I have a diploma from a high school in Beirut, Lebanon. I arrived in the United States six months ago. Now, I am studying English at Loyola University. I would like to begin my studies at Northwestern in September, 1979. My major field of interest is mechanical engineering.

I would also like to receive information on tuition and housing. Would it be possible to live with an American family? In addition, I would also like to know about any scholarships for foreign students.

Would you please send all of this information as soon as possible? Please send it to the above address. Thank you very much.

Text 2

Dear Ms Lima:

I would like to request an interview for the position of typist. I saw your advertisement in Sunday's *Chicago Tribune*. I can type at 80 words per minute. I can take shorthand at 120 words per minute. I have a diploma from a secretarial school in Germany. I worked for five years as a typist in the Admissions Office at the University of Heidelberg. I arrived in the United States eight months ago. Now I am studying English at Loop College. My English is good and my secretarial skills are excellent.

I would like to work for Lexington Steel Corporation. I would be happy to give you a list of references and a complete résumé of my work experience.

Please contact me at the above address. Thank you very much.

The activities which follow are based on the idea that writing is essentially an interactive process in which the interlocutor is absent or imaginary. The written sentences are the *overt* manifestation of this interaction—they answer implied *covert* questions that the writer imagines the reader might ask. A failure to understand this, or to show regard for the imaginary reader, leads to incoherent, 'unreconstructible' text. (See Hoey 1979 and Widdowson 1983 for further discussion.) The idea can be presented in three stages.

Stage 1: reconstructing the reader–writer interaction

I drew my students' attention to the fact that most written sentences are *answers* to imagined questions. In this case, as the letter is a request for information, the first question is *What are you writing for?*, and the answer is

the topic sentence or main idea: *I would like to request an interview/Please send me a catalog*. We imagine the reader to be someone we probably don't know, but who is concerned in a business capacity to find out our purpose in writing and then to supply us with the necessary information. In other words (though we would not be so pedantic with our students), the writer assumes that the reader will be alerted by the address, form of the letter, etc. to the fact that it is meant to be received by him or her in an official job-capacity. The reader will then assume the content is relevant to this role, and co-operate as a reader (cf. Grice 1975).[3]

This is why the layout is important. It alerts the reader to the fact that the writer is addressing him or her in an official capacity and a relevant (i.e. official) reply is expected. Differences between formal and informal letters could therefore be discussed as a prelude.

I then went through the first letter with my students, asking, at the conclusion of each sentence, what question the writer imagined the reader to be asking. For example:

a. Writer's answer: *I have a diploma from a high school in Beirut, Lebanon* to imagined reader's question: *Are you well qualified?*
b. Writer's answer: *I arrived in the United States six months ago* to imagined reader's question: _____.

After discussing what the question behind each sentence might be, I then asked the students to do Exercise 1.

Exercise 1 Read Text 1 and write the answers to these questions by the imaginary reader. Choose the sentences from the text that answer these questions.

1 What are you writing to me for?
2 Are you well qualified?
3 Do you live in America?
4 Do you understand English?
5 When would you like to start?
6 What is your main interest?
7 Would you like any other information?
8 When do you want the information?
9 Where should I send the information?

Stage 2: uncovering covert questions Having been introduced to the idea in this way, learners can then reconstruct for themselves the covert questions asked by Text 2. One girl produced this:

1 What are you writing for?
2 Where did you see the advertisement?
3 How many words can you type per minute?
4 How fast you can shorthand?
5 What are your qualifications?
6 Did you work before?
7 When did you arrive in America?
8 Are you studying English?
9
10 Where would like work?
Is there anything else to say?

We compared answers as a group, and this led to some interesting

discussion about why some information in the letters does not seem to answer a particular question, for example the second paragraph of Text 2.

Saeeda (see the answers above) missed out question 9, presumably because she couldn't think why the information at the end of the first paragraph had been volunteered. Similarly, the first sentence of paragraph two seems redundant, as it is presumably accounted for by the fact that the letter has been written to the Lexington Steel Corporation in the first place. Both these pieces of information seem to be unnecessary, unsolicited by a question *Why?* They are a repetition of the writer's main idea (a sort of rhetorical underlining). This inferencing, or dawning of understanding is much more effective than simply telling students what to do. Again, the extra information these sentences offer could be said to breach the Gricean maxim of quantity. But there is a point to its being repeated, and it is useful to elicit the students' recognition of that point. They will recognize from their competence in their own language the principle of stressing important information.

When the work on questions was finished, I drew students' attention to paragraph boundaries (for example, in Text 1 there are six covert questions in paragraph 1; two in paragraph 2; and only one in the final paragraph). As will be seen, most of the information is contained in the first paragraph. The writer imagines the reader to be asking lots of questions related to personal circumstances (*Who? What? Where? When?*) before agreeing in the final paragraph to send the information.

Note that there is obviously room for variation in phrasing the questions; for example, sentences 3 and 4 in Text 2 could be answering one or two questions: *What are your typing skills?* or *How good is your typing/How good is your shorthand?*. It is important to stress that this variation is acceptable (see Hoey 1979).

Stage 3: redrafting

After comparing the two texts in this way, students could then be given a piece of their own work, or a piece written by another student, and asked to list the implied questions. In this case it was a previously completed letter requesting information. This should then give them guidelines for realizing why some pieces of writing are incoherent: the interlocutor's questions, the dialogue framework, are difficult to reconstruct. They could then use the question–answer technique as an heuristic guide for their own redrafting and composing.

Selecting the right questions: modelling the reader

What of the other point raised in my Introduction, what de Beaugrande and Dressler called 'the ways that a writer can build and use a reasonable model of the reader/audience' (1981:213)? The writer's model of the reader must, of course, be constructed with reference to his or her own intentions or purpose in writing. I will illustrate briefly how the learner might be led to characterize the reader to whom he or she is writing, and then consider how this model might be shown to change to suit changes in the writer's purposes.

Exercise 2

If you were writing to a Bank Manager, what questions do you think he or she would want to ask as reader? Choose them from this list:

—What are you writing for?
—How many words do you need?
—How old are you?

—How good is your English?
—How much can you afford to pay?
—Do you know what our rates of interest are?
—Can you drive?
—Are you married?
—Do you want a deposit or a current account?
—Would you like a picture to accompany the advertisement?
—Can you send me your references?
—When would you like this information?
—Do you want to withdraw your money at short notice?

Some questions given may not be useful at all, and some may be used more than once. Add any other questions you think are appropriate, and put them in order below.

a. The reader is a bank manager.
He/She asks .....
.....
.....
.....
etc.

Who do you think might ask the other questions in the list? Group them together, put them in order, and add to them if you can.

b. The reader is a .....
He/she asks .....
.....
.....
.....
etc.

c. The reader is a .....
He/she asks .....
.....
.....
.....
etc.

Obviously, in order to add questions to those given above, students will need to consider the possible purposes of each interaction. For example, they must first decide that the writer has imagined the bank manager asking questions relevant to the writer's inquiry about opening a deposit or current account. How might these imagined questions change if the writer wants to ask for a loan?

When learners begin to consider the idea of 'purpose' in writing, they could be introduced to task-based activities of the sort suggested by Littlejohn and Hicks (1986), which might involve students in writing letters which attempt to answer some of the questions they will have listed above. By stages and in the sequence I suggested in my introduction, they could thus be led to enact both parts of the exchange which results in the written text.[1]

A situation could be set up in which two groups, Company A and Company B, have to deal with a bank manager. Company A needs to ask for a loan, and Company B wish to enquire about possible investments. At this point, after the first letters have been completed, 'cards could introduce new information which would require the students to rethink their decisions and implement them in writing' (Littlejohn and Hicks 1986). For example, Company A could be informed that demand for their product has suddenly risen dramatically, and *they* now need to ask about investment, whereas Company B have suffered a setback and need to borrow money from the bank, rather than invest it. This rather simple example illustrates the principle that simulations can create situations and tasks which involve learners in adjusting their assumptions about what they are writing for, and this affects their view of who they are writing to.

Conclusion: imitation and use, materials and methodology

It is sometimes assumed, I think, that materials like those in Blanton which present 'models' are of their nature uncommunicative. However, I think this is bound to be true not only of Blanton but of all materials. They cannot predicate a methodology. Of course the models given above can be used to exemplify details of technique, and to provide examples for slavish imitation. But this is surely a fault of the methodology which makes use of them. Alternatively, the models above can be used to direct the learner's attention to the necessary steps involved in the composing process; to develop, for example, 'coherence' strategies based on the projection-into-dialogue technique illustrated here. In this way the models can be seen to 'foster' use, to develop awareness of the leeway that exists for making sense within the confines of the initially presented textual framework. This is what I have tried to demonstrate in this article. Furthermore, I have suggested that an awareness of steps in the composing process must be accompanied by an awareness of the writer's particular purpose in writing, and that this can be helped along by a variety of exercises which require the learner to develop an appropriate model of the reader. Both areas of awareness would subsequently be used when learners complete task-based writing activities.[5] □

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Notes

1 These are what Widdowson calls 'the normal conditions for writing . . . You cannot negotiate anything unless you know who you are negotiating with and for what purpose' (1983:64).

2 A 'schema' is a plan, a way of grouping together expectations about what will happen. I think a writing model can be seen as a schema: the word, and its relation to cognitive science, are explained in detail in de Beaugrande and Dressler (1981).

3 The maxims that Grice formulated apply to participants wishing to co-operate in conversation. There are four of them. Briefly these are the maxim of *Quality* (try to speak the truth, do not say what you believe to be false), the maxim of *Quantity* (say just enough, not too little or too much), the maxims of *Relevance* (make sure your contribution is relevant) and *Manner* (be orderly, brief, and avoid obscurity, etc.).

4 To begin with the task or simulation as an example of a 'real' communicative context is an example of teaching *as* communication. However, learners often have problems with how to proceed in writing. To reverse the natural sequence and begin, as I have suggested here, with developing awareness of how to achieve coherence and to delay the purpose (or 'what for') aspect of writing is an example of teaching *for* communication. In other words, 'real' communication begins with an awareness of the problem or purpose; this involves characterizing the reader and then getting down to deciding how to proceed.

What for→Who to→How
= Teaching as Communication

I have suggested that a pre-task phase is necessary to develop coherence strategies in which we reverse this sequence.

How→Who to→What for
= Teaching for Communication

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